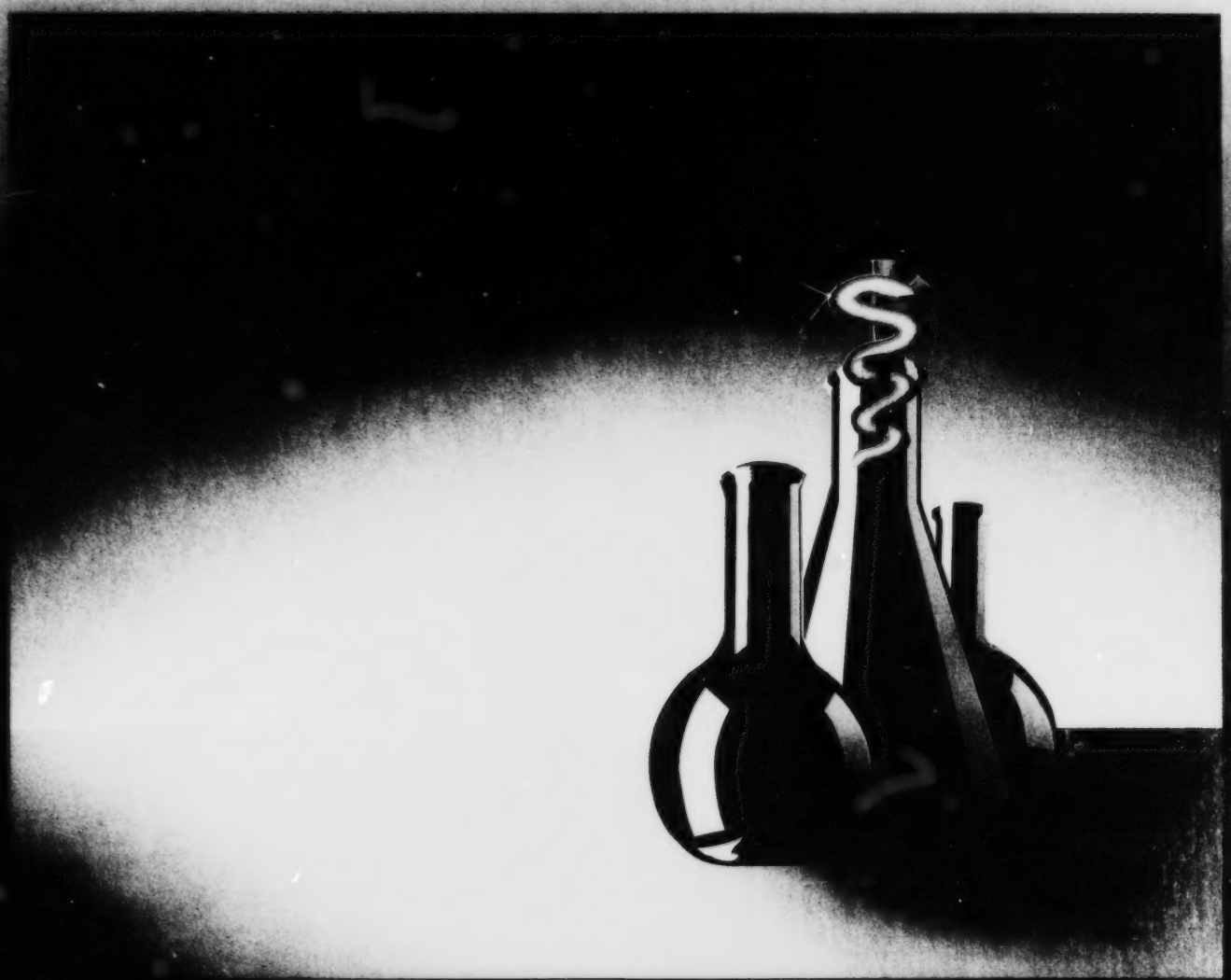
QUÉBEC'S PRINCIPAL HEALTH RESEARCH CENTERS



Québec

89-04353/

QUÉBEC'S PRINCIPAL HEALTH RESEARCH CENTRES

Québec

Gouvernement du Québec
Ministère de l'Industrie
et du Commerce

Published by the Direction des communications

Prepared by: Direction des industries chimiques
Grands projets, chimie et métallurgie

Legal Deposit, 3rd quarter, 1988
Bibliothèque nationale du Québec
ISBN 2-550-18865-9
© Gouvernement du Québec 1988

FOREWORD

The vitality and excellence of Québec's health research centres have won them international acclaim. Today, they have attained the "critical mass" necessary to attract other research activities.

Québec numbers more than 1 500 researchers working in some 35 research centres and institutes offering opportunities for collaboration with pharmaceutical companies. Nearly all of these centres are affiliated with Québec's five major universities: Université Laval, McGill University, Université de Montréal, Université de Sherbrooke and Université du Québec. Two are administered by Concordia University while Bio-Research Laboratories Ltd. is a private-sector firm and the Biotechnology Research Institute is a federal government facility.

The information provided in this document was obtained through a survey conducted in the spring of 1988. It includes the principal activities of those health research centres in Québec which offer concrete opportunities for collaboration in the short term with the pharmaceutical industry. The research activities of pharmaceutical companies are not listed herein.

To receive a copy of this document and future updated versions, please contact:

Ministère de l'Industrie, du Commerce
et de la Technologie
Direction des industries chimiques
Secteur pharmaceutique
C/O Madeleine Caron, Eng.
710, place d'Youville, 7e étage
Québec (Québec)
Canada
G1R 4Y4
Phone: (418) 691-5976
Telex: 051-3330

TABLE OF CONTENTS

TABLE OF CONTENTS

		PAGE
Foreword		3
Table of contents		7
CHAPTER I:	RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL	
I.1	Hôpital Saint-François-d'Assise Research Centre	15
I.2	Centre hospitalier de l'Université Laval	
I.2.1	Research Centre for Lipid Diseases	16
I.2.2	Inflammation and Immunology-Rheumatology Research Unit	17
I.2.3	Department of Infectious Diseases	18
I.2.4	Research Centre for Molecular Endocrinology	19
I.3	Hôpital Hôtel-Dieu de Québec Research Centre	
I.3.1	Research Centre for Molecular and Cellular Biology: Antitumour Drugs	20
I.3.2	Research Centre for Molecular and Cellular Biology: Genitourinary Cancer	21
I.3.3	Research Centre for Molecular and Cellular Biology: Nephrology-Hypertension-Pharmacology	22
I.4	Hôpital Laval Research Centre	
I.4.1	Pneumology Research Unit	23
I.4.2	Cardiology Research Unit	24
I.5	Université Laval, School of Pharmacy	25
I.6	Université Laval, Faculty of Medicine	
I.6.1	Laboratory of Cancerology	26
CHAPTER II:	RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE	
II.1	Université de Sherbrooke, Faculty of Medicine	
II.1.1	Immunobiology Research Unit	29
II.1.2	Research Centre for Pharmacology	30
II.1.3	MRC Group in the Radiation Sciences	31
II.1.4	Genetic Engineering Training and Research Group	32

PAGE

CHAPTER II: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE (Concluded)

II.1.5 Research Group in Respiratory Diseases..... 33

II.1.6 Research Group in Biochemistry..... 34

II.1.7 Research Group in Mechanisms of Cellular Action during Development and Aging..... 35

II.1.8 Research Group in Basic Electrophysiology of Heart and Vascular Smooth Muscle..... 36

II.2 Centre hospitalier universitaire de Sherbrooke, Clinical Research Centre... 37

II.3 Université de Sherbrooke, Faculty of Science

II.3.1 Research Centre for Mechanisms of Secretion..... 38

II.3.2 Research Centre for Organic Synthesis..... 39

II.3.3 Centre of Application in Calorimetry and Thermodynamics of the Université de Sherbrooke (CACTUS)..... 40

CHAPTER III: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.1 Université de Montréal, Faculty of Veterinary Medicine

III.1.1 Animal Reproduction Centre: Biotechnology..... 43

III.1.2 Animal Reproduction Centre: Pharmacology..... 44

III.1.3 Research Centre for Infectious Porcine Diseases..... 45

III.1.4 Research Centre for Bovine Studies..... 46

III.2 Université de Montréal, Faculty of Pharmacy

III.2.1 Research Centre for Pharmaceutical Technology..... 47

III.2.2 Research Centre for Clinical Pharmacy..... 48

III.2.3 Research Centre for Biopharmaceutics..... 49

III.2.4 Research Centre for Drug Quality Control..... 50

III.2.5 Research Centre for Medicinal Chemistry..... 51

III.3 Clinical Research Institute of Montréal..... 52

III.4 Cancer Institute of Montréal..... 53

III.5 Hôpital Sainte-Justine Research Centre..... 54

PAGE

CHAPTER III: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL (Concluded)

III.6 Hôpital du Sacré-Coeur Research Centre..... 55

III.7 Montréal Heart Institute..... 56

III.8 Hôpital Notre-Dame Research Centre..... 57

III.9 Hôpital Maisonneuve-Rosemont Research Centre..... 58

III.10 Hôpital Louis-Hippolyte-Lafontaine Psychiatric Research Centre..... 59

III.11 André Viallet Clinical Research Centre..... 60

III.12 Université de Montréal, Faculty of Medicine

III.12.1 Research Centre for Neurological Science..... 61

III.13 Université de Montréal, Faculty of Sciences

III.13.1 Research Centre for Biochemical Synthesis..... 62

III.13.2 Research Centre for Organic Chemistry Synthesis..... 63

CHAPTER IV: RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.1 Artificial Cells and Organs Research Centre..... 67

IV.2 Biomedical Engineering Unit..... 68

IV.3 McGill Cancer Centre..... 69

IV.4 Royal Victoria Hospital Research Institute..... 70

IV.5 Centre for Human Genetics..... 71

IV.6 McGill Centre for the Study of Reproduction..... 72

IV.7 McGill Collaborative Program in Pharmacoepidemiology (MCP-P)..... 73

IV.8 Department of Pharmacology & Therapeutics..... 74

IV.9 Medical Physics Unit..... 75

IV.10 McGill Centre for Tropical Diseases..... 76

IV.11 McGill Centre for Medicine, Ethics and Law..... 77

IV.12 School of Occupational Health..... 78

IV.13 Cognitive Science in Medicine..... 79

IV.14 Institute of Parasitology..... 80

PAGE

CHAPTER IV: RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY (Concluded)

IV.15 Douglas Hospital Research Centre (DHRC)..... 81

IV.16 Sir Mortimer B. Davis-Jewish General Hospital..... 82

IV.17 McGill University-Montréal Children's Hospital Research Institute..... 83

IV.18 Montréal General Hospital Research Institute..... 84

IV.19 McGill Centre for Studies in Age and Aging..... 85

IV.20 Montréal Neurological Institute..... 86

CHAPTER V: RESEARCH CENTRES AFFILIATED WITH CONCORDIA UNIVERSITY

V.1 Research Centre for Neurobiological Behaviour..... 89

V.2 Pharmaceutical Marketing Research..... 90

CHAPTER VI: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DU QUÉBEC

VI.1 Université du Québec à Montréal

VI.1.1 Research Centre for Immunotoxicology..... 93

VI.2 Institut Armand-Frappier

VI.2.1 Research Centre for Applied Microbiology..... 94

VI.2.2 Research Centre for Bio-organic and Medicinal Chemistry..... 95

CHAPTER VII: NATIONAL RESEARCH COUNCIL OF CANADA, BIOTECHNOLOGY RESEARCH INSTITUTE

VII.1 Virology Research Group..... 99

VII.2 Mammalian Cell Genetics Research Group..... 100

VII.3 Gene and DNA Synthesis Research Group..... 101

VII.4 Receptors Research Group..... 102

VII.5 Macromolecular Structure Research Group..... 103

VII.6 Enzymology Research Group..... 104

VII.7 Peptide Synthesis Research Group..... 105

VII.8 Protein Chemistry Research Group..... 106

PAGE

CHAPTER VII: NATIONAL RESEARCH COUNCIL OF CANADA, BIOTECHNOLOGY RESEARCH INSTITUTE (Concluded)

VII.9 Molecular Immunology Research Group..... 107

VII.10 Separation Technology Research Group..... 108

CHAPTER VIII: BIO-RESEARCH LABORATORIES LTD.

VIII.1 Bioanalytical Research and Development and Radiolabelled Studies Department. 111

VIII.2 Division of Clinical Research..... 112

VIII.3 Division of Analytical Services..... 113

VIII.4 Division of Toxicology..... 114

VIII.5 Division of Pathology..... 115

INDEX OF RESEARCH FIELDS..... 119

CHAPTER I: RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.1 HÔPITAL SAINT-FRANÇOIS-D'ASSISE RESEARCH CENTRE

Address: Hôpital Saint-François-d'Assise
10, rue de l'Espinay
Québec (Québec)
Canada G1L 3L5

Phone/Telex: (418) 525-4438

Contact: Dr. Jean-Claude Forest, M.D., Ph.D., Director

Staff: 13 researchers, 4 postdoctoral fellows (Ph.D.), 9 graduate students, 7 research assistants (B.Sc.), 3 research nurses, 4 secretaries

Research interests:

Human Reproduction:

Endocrinology of reproduction: Physiopathology of hormone-dependent gynecologic diseases: endometriosis, uterine leiomyoma, polycystic ovarian disease. Application of LHRH agonists to the treatment of these diseases and the study of their physiopathology. Female and male contraception. Endocrine effects of synthetic steroids: antiprogesterone, antiandrogen, control of hirsutism and acne; model of estrogen deprivation and hormonal replacement therapy using LHRH agonists. Multicentre studies.

Perinatology: Study on pre-eclampsia and premature labour. Multicentre epidemiological study on risk factors related to prematurity. Evaluation of obstetrical interventions and treatments. Pharmacological studies during pregnancy and the neonatal period.

Human genetics: Genetic probes in screening for genetic diseases.

Biomaterials:

Studies on the durability of vascular prostheses. Study on the characteristics of the prostheses before implantation and after removal. Biocompatibility studies. Evaluation of mechanical and biological cardiac valves. Studies on biocompatibility of mammary prostheses.

Contract work performed/Grants: Medical Research Council of Canada; Health and Welfare Canada; Supply and Services Canada; Pharmaceutical industry: Hoechst, Canada, U.S.A. and Germany; ICI, Canada, U.S.A. and England; Roussel, Canada and France; Berlex Canada; Wyeth, Canada and U.S.A.; Biomaterials: Ethicon, U.S.A.; Bard, U.S.A.; Cascade, Canada; Barone, Argentina; Vascutek, England; Mitral Medical Inc., U.S.A.; St-Jude, U.S.A. and France.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.2 CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL

I.2.1 RESEARCH CENTRE FOR LIPID DISEASES

Address: Centre hospitalier de l'Université Laval
2705, boul. Laurier
Ste-Foy (Québec)
Canada G1V 4G2

Phone/Telex: (418) 656-4141, ext. 7185

Contact: Prof. Paul-J. Lupien, M.D., Ph.D., Director

Staff: Dr. D. Brun, M.D., Dr. C. Gagné, M.D., Dr. S. Moorjani, Ph.D., Dr. P. Julien, Ph.D., 2 graduate students, 6 research assistants

Research interests:

Familial hypercholesterolemia (FH):
Effect of various hypolipidemic drugs (single or combined) on lipoprotein and apoprotein levels in humans. Relation to Coronary Heart Disease (CHD). Genomic diagnosis of familial hypercholesterolemia. Studies on mutations in the gene of low-density lipoprotein (LDL) receptors (genomic Southern Blotting Analysis, cell culture, HMG-CoA reductase, liquid chromatography, ultracentrifugation).

Epidemiological studies related to CHD:
Extracorporal treatment of FH (LDL-Apheresis).

Primary Lipoprotein Lipase (LPL) deficiency in humans:
Characterization of lipids and lipoproteins in chylomicrons. Study of molecular basis of genetic defects and transmission. Apoprotein classes, LPL activity and mass, cell culture. Effect of various diets. Effect of Apo E phenotypes on lipoproteins in myotonic muscular dystrophy.

Contract work performed/Grants: Health and Welfare Canada; Canadian Fitness and Lifestyle Institute; Medical Research Council of Canada; Canadian Heart Foundation; Fonds de la recherche en santé du Québec; Ayerst, McKenna & Harrison Inc.; Parke-Davis Canada Inc.; Merck Frosst Canada Inc.; Servier Canada Inc.; Squibb Canada Inc.; Sandoz (Canada) Ltd.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.2 CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL

I.2.2 INFLAMMATION AND IMMUNOLOGY-RHEUMATOLOGY RESEARCH UNIT

Address:

Centre hospitalier de l'Université Laval
2705, boul. Laurier
Ste-Foy (Québec)
Canada G1V 4G2

Phone/Telex

(418) 656-4141

Contact:

Dr. André Beaulieu, M.D., Dr. Pierre Borgeat, Ph.D.

Staff:

9 senior researchers, 2 postdoctoral fellows, 14 graduate students, 11 research assistants, 14 laboratory technicians

Research interests:

Studies on the mechanisms of tissue injury in arthritis.

Studies on the mechanism of regulation of 5-lipoxygenase activity in phagocytes. Studies on the involvement of leukotrienes and other eicosanoids in defense mechanisms and in allergic and inflammatory diseases. Studies on the mechanism of action of new anti-inflammatory drugs with emphasis on their potential effects on eicosanoid synthesis.

Production and characterization of monoclonal antibodies against various allergens (Ragweed, rye(s), birch, alternaria) in order to define the role of the idiotype-anti-idiotype network in the regulation of immune response.

Studies on the regulation of gene expression in synovial fluid cells and fibronectin gene expression in androgen-dependent cells.

Studies on the tissue effects of peptide mediators of inflammation.

Study of the activation mechanisms of leukocytes and the regulation of their functions by inflammatory mediators.

Study of the mechanism of production of allergic symptoms and the biological role of gangliosides in the surface of melanoma.

Studies on the involvement of leukotrienes in inflammatory joint diseases.

Studies on the immunological mechanism involved in organ transplantation rejection, particularly for kidney and corneal grafts in humans and arterial grafts in dogs.

Contract work performed/Grants:

Omega Laboratories Ltd., Montréal.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.2 CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL

I.2.3 DEPARTMENT OF INFECTIOUS DISEASES

Address: Centre hospitalier de l'Université Laval
2705, boul. Laurier
Ste-Foy (Québec)
Canada G1V 4G2

Phone/Telex: (418) 654-2705

Contact: Dr. Michel G. Bergeron, M.D., Director

Staff: 8 researchers, 1 postdoctoral fellow, 11 research assistants, 2 Ph.D. students, 20 M.Sc. students, 11 trainees

Research interests: The primary objective of this research group is to study in vitro and in vivo interactions between microorganisms, antibiotics and host defenses in animals and humans.

- Pharmacokinetics, pharmacodynamics and tissue penetration of antibiotics.
- Toxicity of antibiotics.
- Epidemiologic and genetic engineering studies on resistance to antibiotics.
- Clinical research on the effectiveness and toxicity of antibiotics in the treatment of AIDS and other infectious diseases.

Contract work performed/Grants: The centre receives research funding from government agencies (Medical Research Council of Canada, Natural Sciences and Engineering Research Council of Canada, Fonds de la recherche en santé du Québec, etc.) and has collaborated with the pharmaceutical industry for over 15 years.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.2 CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL

I.2.4 RESEARCH CENTRE FOR MOLECULAR ENDOCRINOLOGY

Address: Centre hospitalier de l'Université Laval
2705, boul. Laurier
Ste-Foy (Québec)
Canada G1V 4G2

Phone/Telex: (418) 654-2704

Contact: Dr. Fernand Labrie

Staff: Total of 133 including 13 senior researchers, 12 postdoctoral fellows, 36 graduate students, 24 research assistants, 13 technicians, 2 nurses, 14 other support staff

Research interests:

Fertility control: Mechanisms of regulation of gonadotrophins and ovarian as well as testicular hormone secretion. Mechanisms of sperm maturation and in vitro fertilization.

Hormones and cancer: Mechanisms controlling the formation and degradation of hormones in cancer tissue, especially the prostate and breast. New approaches for the treatment of hormone-sensitive cancer.

Biotechnology: Monoclonal antibodies against various subcellular components, especially receptors for hormones, genetic screening.

Molecular biology and genetics: Mechanisms of control of gene expression in normal and pathological states. Complementary techniques ranging from chemistry to clinical application.

Clinical research: Clinical research facilities for all the research units permitting rapid transfer of the fundamental discoveries to clinical application.

Contract work performed/Grants: Bio-Mega inc., Eli Lilly, CIBA-GEIGY, Schering-Plough, Merck Sharp & Dhome Canada, Bristol-Myers, Sandoz, Wyeth, Syntex, Beecham Laboratories Inc.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.3 HÔPITAL HÔTEL-DIEU DE QUÉBEC RESEARCH CENTRE

I.3.1 RESEARCH CENTRE FOR MOLECULAR AND CELLULAR BIOLOGY: ANTITUMOUR DRUGS

Address: Hôtel-Dieu de Québec
11, côte du Palais
Québec (Québec)
Canada G1R 2J6

Phone/Telex: (418) 691-5281

Contact: Dr. Luc Bélanger, M.D., Director

Staff: 1 researcher, 1 research fellow (Ph.D.), 5 graduate students, 1 research assistant (B.Sc.)

Research interests: Biotechnology of antitumour drugs:

- Antitumour drugs of the epipodophyllotoxin family (etoposide, teniposide): the mechanism of their cytotoxic and cytocidal actions; mechanism of binding to and inhibition of their target enzyme topoisomerase II; molecular studies of normal topoisomerase II and of its modifications in human tumours which have become resistant to these drugs.

- Identification and characterization of newly discovered proteins of the chromosome centromere and cloning of their genes.

Contract work performed/Grants: Medical Research Council of Canada, National Cancer Institute of Canada.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.3 HÔPITAL HÔTEL-DIEU DE QUÉBEC RESEARCH CENTRE

I.3.2 RESEARCH CENTRE FOR MOLECULAR AND CELLULAR BIOLOGY: GENITOURINARY CANCER

Address: Hôtel-Dieu de Québec
11, côte du Palais
Québec (Québec)
Canada G1R 2J6

Phone/Telex: (418) 691-5281

Contact: Prof. Yves Fradet, M.D., F.R.C.S. (C)

Staff: 1 research associate (Ph.D.), 2 research assistants, 3 graduate students

Research interests: Applied biotechnology in cancers of the genitourinary tract:

Immunological and biological approaches to the biology of human bladder cancer. Study of molecules as specific markers of subtypes of tumours and as mediators of tumour progression in human cancers. Monoclonal antibodies to human cancers (particularly bladder tumours) and their use in tumour detection, for immunopathology, in flow cytometry studies and in radioimmunodetection of metastasis. Cloning and study of genes coding for tumour-associated antigens of human cancers.

Commercial potential: Screening test in urine for human bladder tumours. Immunocytology of bladder tumours. Tumour treatment by intravesical instillation of monoclonal antibodies coupled to toxins. Tumour imaging with radiolabelled monoclonal antibodies.

Contract work performed/Grants: National Cancer Institute of Canada, The Cancer Research Society Inc.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.3 HÔPITAL HÔTEL-DIEU DE QUÉBEC RESEARCH CENTRE

I.3.3 RESEARCH CENTRE FOR MOLECULAR AND CELLULAR BIOLOGY: NEPHROLOGY-HYPERTENSION-PHARMACOLOGY

Address:	Hôtel-Dieu de Québec 11, côte du Palais Québec (Québec) Canada G1R 2J6
Phone/Telex:	(418) 691-5281
Contact:	Dr. Guy Bélanger, Director
Staff:	3 researchers (2 Ph.D., 1 M.D.), 1 research assistant (M. Sc.), 3 technicians, 2 graduate students (M.Sc. and Ph.D.), 1 nurse
Research interests:	Vasoactive drugs in the treatment of hypertension and cardiovascular diseases: - Pathogenesis of essential arterial hypertension. Clinical pharmacology of antithypertensives. - Biosynthesis of prostacyclin in arterial hypertension. Action of antithypertensives on the synthesis of eicosanoïds. - Role of neuropeptides in cardiovascular regulation.
Contract work performed/Grants:	Medical Research Council of Canada, Fondation du Québec des maladies du coeur, Kidney Foundation of Canada.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.4 HÔPITAL LAVAL RESEARCH CENTRE

I.4.1 PNEUMOLOGY RESEARCH UNIT

Address:
Hôpital Laval
2725, chemin Ste-Foy
Ste-Foy (Québec)
Canada G1V 4G5

Phone/Telex:
(418) 656-4760

Contact:
Dr. Yvon Cormier, Dr. Louis-Philippe Boulet, Dr. Francis Laberge, Dr. Pierre Leblanc, Dr. Michel Laviolette

Staff:
5 researchers, 1 research associate, 7 research assistants, 4 graduate students

Research interests:

Extrinsic allergic alveolitis:
Clinical evolution of patients suffering from this disease.
Development of a specific provocative technique.

Pulmonary neoplasia:
Multiple clinical studies on the treatment of lung cancers in collaboration with the U.S. National Institute of Health (LCSG) and the National Cancer Institute of Canada (Clinical Trials).

Biocellular mechanisms in asthma.

Studies on pulmonary capacities and asthmatic attacks on small air passages.

Mechanisms and treatment of sleep apnea.

Study of the relationships between respiratory function tests, functional capacity during exercise and the detection of symptoms in individuals who have undergone pulmonary resection and in those suffering from a chronic obstructive pulmonary disease.

Respiratory pharmacology:
Study on bronchodilator-type antiasthmatic medication.

Contract work performed/Grants:
Schering Canada Inc., Fisons Corporation Ltd., Glaxo Laboratories, Astra Pharmaceuticals Canada Ltd., Parke-Davis Canada Inc., Merck Frosst, Association pulmonaire du Québec, Medical Research Council of Canada.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.4 HÔPITAL LAVAL RESEARCH CENTRE

I.4.2 CARDIOLOGY RESEARCH UNIT

Address: Hôpital Laval
2725, chemin Ste-Foy
Ste-Foy (Québec)
Canada G1V 4G5

Phone/Telex: (418) 656-4760

Contact: Dr. Jacques R. Rouleau, Director

Staff: 7 researchers, 4 research assistants, 2 graduate students

Research interests: Studies on the mechanisms of myocardial distribution of coronary blood flow.
Influence of therapeutic agents on ventricular functioning, myocardial metabolism and tissue necrosis due to ischemia followed by coronary reperfusion.
Epidemiology of ischemic cardiovascular diseases: risk factors, incidence and prognosis in 4 500 men monitored over a 12-year period.
Function of the left ventricle in arterial hypertension, ischemia and valvular diseases.
Pharmacological intervention with the use of antiarrhythmics.
Pharmacological intervention during chronic cardiac insufficiency.
Pharmacological intervention to improve the prognosis for people suffering from hypertension.
Intervention on thromboxane and thrombosis for unstable angina, myocardial infarction, angioplasty and post-coronary bypass surgery.

Contract work performed/Grants: Laboratoires Nordic Inc., R.P. Scherer, Marion, Squibb Canada Inc., Syntex Inc., Sterling Drug Ltd., Mallinckrodt Canada Inc., Genentec Inc., Boehringer Ingelheim (Canada) Ltd., Fondation du Québec des maladies du coeur, Medical Research Council of Canada, Fonds de la recherche en santé du Québec.

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.5 UNIVERSITÉ LAVAL, SCHOOL OF PHARMACY

Address:
Université Laval
École de pharmacie
Pavillon Vachon
Ste-Foy (Québec)
Canada G1K 7P4

Phone/Telex:
(418) 656-3211 / UNILAVALQBC 051-31621

Contact:
Dr. Gaston Labrecque, Dr. Pierre M. Bélanger

Staff:
21 professors, 21 graduate students (5 Ph.D., 16 M.Sc.), 21 students on the Hospital Residency Program, 3 research assistants, 3 postdoctoral fellows

Research interests:
Research has focussed on 2 themes: "Factors modifying the effects of drugs" and "Social pharmacy."
In "Factors modifying the effects of drugs," professors are studying the effects of age, of hormones on drug binding to receptor sites, of hepatic drug metabolism, of tissue metabolism on cancerogenesis, of time of drug administration, of clinical pharmacokinetics of antibiotics.
In "Social pharmacy," professors are studying the influence of pharmacists and other health professionals on drug use, factors influencing the practice of community pharmacists, drug utilization in humans.
Other professors are interested in research in medicinal chemistry, in pharmaceutical physics and in modelization in pharmacokinetics.

Contract work performed/Grants:
Medical Research Council of Canada, Fonds de recherche en santé du Québec, Fonds pour la formation de chercheurs et action concertée, The Parkinson Foundation of Canada, Canadian Cancer Society, National Cancer Institute of Canada, Natural Sciences and Engineering Research Council of Canada, U.S. National Institute of Health and many pharmaceutical companies (such as Lilly, Merck Frosst, Sandoz, The Upjohn Company).

I RESEARCH CENTRES AFFILIATED WITH UNIVERSITÉ LAVAL

I.6 UNIVERSITÉ LAVAL, FACULTY OF MEDICINE

I.6.1 LABORATORY OF CANCEROLOGY

Address: Université Laval
Faculté de médecine
Ste-Foy (Québec)
Canada G1K 7P4

Phone/Telex: (418) 656-2664

Contact: Dr. Michel Pagé

Staff: 17 researchers

Research interests: We have developed an expertise in cancer diagnostics with new serum markers using monoclonal antibodies and a new type of chemotherapy called "drug targeting" in which drugs are carried to the tumour by means of specific monoclonal antibodies.

Research projects

- Development of a serum diagnostic assay for sarcomas using monoclonal antibodies. Antibodies are available.
- Development of a serum diagnostic assay for ovarian cancer using monoclonal antibodies.
- Chemotherapy of sarcoma with daunorubicin, alkylating agents-antibody conjugates.
- Chemotherapy of colon cancer with daunorubicin, alkylating agents-antibody conjugates (antiCEA).
- Chemotherapy of ovarian cancer with daunorubicin, methotrexate-antibody conjugates.
- Development of new alkylating agents.

Expertise: Monoclonal antibodies, ELISA and radioimmunoassays, drug coupling, cell culture, in vitro and in vivo assays.

Contract work performed/Grants: The research performed in our laboratory is strongly oriented towards clinical applications in the near future (5 years). Agreements have been signed with many foreign laboratories and with pharmaceutical companies.

CHAPTER II: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.1 IMMUNOBIOLOGY RESEARCH UNIT

Address: Université de Sherbrooke
Faculté de médecine
3001, 12e avenue Nord
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 564-5226; (819) 563-5555, ext. 4851

Contact: Dr. Marek Rola-Pleszczynski

Staff: 3 senior researchers (positions to be added), 1-2 postdoctoral fellows, 4 Ph.D. students, 2 M.Sc. students, 4 technicians

Research interests:

Immunopharmacology:
Study of inflammatory mediators (leukotrienes, PAF-acether, etc.) and their antagonists and inhibitors on cellular immune reactions (macrophages, NK cells, etc.) involved in host defenses against viruses and tumours. Study of immunoregulation by neuropeptides (VIP, somatostatin, substance P, etc.) and their structural analogs and antagonists.

Immunopathology of the lung:
Immunotoxicology of inorganic dusts (asbestos, silica, etc.). Local pulmonary defenses against virus and tumour metastasis: interactions of alveolar macrophages and local NK lymphocytes. Human, rat and mouse models.

Study of cytotoxic cytokines:
Modulation of production and action of cytokines involved in NK, NC and macrophage cytotoxic activity. Characterization of new cytotoxic factors.

Monoclonal antibody production:
Identification of new lymphocyte subpopulations. In particular, characterization of a novel natural cytotoxic lymphocyte subset different from NK cells.

Equipment: Fluorescent-activated cell sorter (FACS-400+ FACS-Scan), spectrophotometers, HPLC, beta and gamma counters, cryopreservation unit, cell electrofusion unit, molecular biology laboratory.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.2 RESEARCH CENTRE FOR PHARMACOLOGY

Address:	Université de Sherbrooke Faculté de médecine Sherbrooke (Québec) Canada J1H 5N4
Phone/Telex:	(819) 564-5239
Contact:	Dr. Pierre Sirois, Ph.D.
Staff:	9 senior researchers (full, associate and assistant professors), 25 graduate students, 4 postdoctoral fellows, 7 technicians
Research interests:	Structure-activity studies with biologically active peptides. Development of new peptides with therapeutic potential. Evaluation of the pharmacological properties of asthma drugs. Immunohistochemical localization of bioactive peptides in selected areas of the body. Behavioural neuropharmacology. Studies on mechanisms of action of hormones. Studies on hypertension and inflammation.
Equipment:	Peptide synthesizers, HPLC, mass spectrometer (GC-MS and LC-MS), beta and gamma counters, spectrophotometers, ELISA (for prostaglandins and thromboxanes), electron microscopy facilities, elutriator, microcomputers.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.3 MRC GROUP IN THE RADIATION SCIENCES

Address:	Université de Sherbrooke Faculté de médecine Département de médecine nucléaire et de radiologie Sherbrooke (Québec) Canada J1H 5N4
Phone/Telex:	(819) 563-5555, ext. 4603
Contact:	Dr. J.E. Van Lier
Staff:	7 senior researchers, 6 postdoctoral fellows, 15 graduate students, 10 laboratory and electronic support staff
Research interests:	Development of radiopharmaceuticals for nuclear medicine; radiolabelling of hormones and antibodies; pharmacokinetic studies with small animals. Development of diode detector technology for positron emission tomography. Photodynamic cancer therapy; development of new sensitizers; in vitro and in vivo assays. Radiation and photochemistry of biomolecules; DNA repair mechanisms. Femtosecond laser system for fast kinetic research. Ultra-high vacuum technology for studies of low-energy electrons. Modelling of physicochemical processes.
Equipment:	Gamma-cameras for diagnostic nuclear imaging, Co-60 radiation source, radioactivity detectors and counters, cell biology, organic- and radio-chemistry facilities, ultra-high vacuum equipment for low-energy electron impact studies, femtosecond laser system and conventional light sources for photochemistry and biology, chromatographic and analytical instrumentation (HPLC, GC, GC-MS, HPLC-MS, UV-VIS, etc.).
Contract work performed/Grants:	Medical Research Council of Canada, National Cancer Institute of Canada, Government-Industry technology transfer programs (PET camera, RCA-NSERC; radiolabelling of monoclonal antibodies, Rougier Biotech-NRCC).

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.4 GENETIC ENGINEERING TRAINING AND RESEARCH GROUP

Address: Université de Sherbrooke
Faculté de médecine
Département de microbiologie
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 564-5321

Contact: Dr. Pierre Bourgaux

Staff: 6 senior researchers, 3 senior research associates, 5 postdoctoral fellows, 20 graduate students, 10 technicians, 2 support staff

Research interests: Molecular analysis of multistep carcinogenesis. Studies on the structure and function of the early genes of DNA tumour viruses. Use of recombinant DNA techniques to map the sequences required for cellular transformation and immortalization. Studies on factors controlling gene expression in mammalian cells. Integration and excision of polyomavirus DNA in transformed mouse cells. Site-specific recombination of polyomavirus DNA. Viral function(s) involved in recombination. Cis and trans-interactions between cellular genes and viral genes integrated into host chromosomes. Identification, molecular cloning and study of genes implicated in the maintenance of transformation and detransformation from adenovirus transformed somatic cell mutants resistant to anticancer drugs. Study of the adenovirus protease gene, virus-human lymphocyte interactions, and biotechnology applications. Genetic analysis of the regulation of plant and mammalian genes by genetic engineering. Cloning of genes involved in cancer and tumour promotion. Cloning and regulation of mouse and rabbit metallothionein. Cloning of soya and tomato alcohol dehydrogenase. Cloning of plant genes involved in plant growth. Studies on the genetic control of immunoglobulin light chains. Structural analysis of murine kappa genes. Analysis of light chain diversity by isoelectric focussing. Studies on the molecular basis of kappa chain polymorphism in inbred mice. Use of genetic markers and recombinant DNA techniques to map the genes within the Vk complex of the mouse. Studies on the sequence requirements necessary for the high rate of somatic mutation of immunoglobulin variable region genes.

Equipment: Comprehensive facilities for tissue culture, animal virology, molecular biology and genetic engineering.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.5 RESEARCH GROUP IN RESPIRATORY DISEASES

Address:	Centre hospitalier universitaire de Sherbrooke Faculté de médecine Département de pneumologie Sherbrooke (Québec) Canada J1H 5N4
Phone/Telex:	(819) 563-5555, ext. 4462
Contact:	Dr. Raymond Bégin, M.D., Director, Pulmonary medicine
Staff:	6 senior researchers, 4 graduate students
Research interests:	Study of toxicity of inhaled substances. Study of toxicity of mineralogical and organic matter that can be inhaled by the lung. Analyses of lung tissue are done through cytology, cell culture analysis, biochemistry of lung lavage and histopathology of auptosy lung samples. The laboratory also has facilities to do lung function tests, chest radiography, lung uptake of radioactive markers useful in the characterization of the early lung reaction. The expertise acquired in the past can be applied to other materials that could have lung toxicity.
Contract work performed/Grants:	The group is currently associated with the Institut de recherche en santé au travail to conduct studies on lung diseases of interest to this research institute, which is a research component of the Commission de la santé et de la sécurité du travail du Québec. Our group also receives substantial funding from the Medical Research Council of Canada and has consistently obtained research contracts from the Institut de recherche et développement de l'amiante, Société nationale de l'amiante, Centre d'études et recherches de Charbonnières de France.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.6 RESEARCH GROUP IN BIOCHEMISTRY

Address: Université de Sherbrooke
Faculté de médecine
Département de biochimie
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 564-5282

Contact: Dr. Jean-Guy Lehoux

Staff: 9 senior researchers, 2 research associates, 2 postdoctoral fellows, 18 graduate students, 10 technicians, 2 support staff

Research interests: Basic biochemistry:

- Study of the mechanism of action of lectins. Isolation of receptors for such lectins.
- Study of the mechanisms of halo-adaptation in archaebacteria.
- Study of gene expression in eukaryotes.
- Genetic origin of antibody variability. Evolution of multigene families.
- Control mechanisms of corticosteroids biosynthesis. Mode of action of hormones at the target-cell level.
- Studies of the structure/function of the membranes of zymogen granules.
- Chemistry and biochemistry of steroid hormones.
- Control of cholesterogenesis.
- Mechanisms of control of gene expression of the chromatin level.

Equipment: Complete facilities and equipment for cell culture, biochemistry, molecular biology and X-ray diffractometer.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.7 RESEARCH GROUP IN MECHANISMS OF CELLULAR ACTION DURING DEVELOPMENT AND AGING

Address: Université de Sherbrooke
Faculté de médecine
Département de biochimie
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 564-5282

Contact: Dr. Jean-Guy Lehoux

Staff: 7 senior researchers, 1 postdoctoral fellow, 1 research associate, 8 graduate students, 10 technicians

Research interests: The mechanisms of action of factors involved in the hormonal response during development and aging. Current investigations include:

- Structure of thyroid and steroid hormone receptors during chick embryogenesis.
- Characterization of androgen receptors in human prostatic tissues.
- Aging endocrinology of the reproductive axis.
- Correlations between ACTH, LHRH, and biochemical responses in human placenta.
- Factors controlling adrenal cholesterogenesis and steroidogenesis.
- Nature of surface receptors involved in lymphocyte transmembrane signals.

Equipment: Complete facilities and equipment for cell cultures. 3 ultracentrifuges, 1 spectrofluorometer, 1 spectrophotometer, 1 beta radioactivity counter and 1 gamma radioactivity counter, 1 high pressure liquid chromatograph.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.1 UNIVERSITÉ DE SHERBROOKE, FACULTY OF MEDICINE

II.1.8 RESEARCH GROUP IN BASIC ELECTROPHYSIOLOGY OF HEART AND VASCULAR SMOOTH MUSCLE

Address: Université de Sherbrooke
Faculté de médecine
Département de physiologie et de biophysique
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 563-5301

Contact: Dr. Elena Ruiz

Staff: 4 senior researchers, 10 graduate students (M.Sc. and Ph.D.), 4 laboratory technicians, 1 workshop technician

Research interests:
Effect of vasoactive substances and calcium antagonists on vascular smooth muscle.
Regulation of the cardiac slow calcium channel by cyclic nucleotides.
Role of slow sodium and calcium channels in the development of Duchenne's muscular dystrophy.
Effect of Ca agonists and antagonists on the slow Na channel.
Electrophysiology and pharmacology of the human and hamster hereditary cardiomyopathy.
Electrophysiology of hypoxic myocardium nature of resting potential, ionic currents associated with changes in action potential, potassium channel blockers, effects of insulin.
Comparative study of the pacemaker mechanisms in different models of spontaneously beating heart cells.
Effects of insulin on electrical properties of cardiac cells.
Membrane electrical phenomena underlying excitation-secretion coupling in glomerular cells of the adrenal cortex.

Equipment: 4 set-ups for electrophysiological studies with microelectrodes and 6 for voltage and current clamp experiments on isolated cells including automated data acquisition and signal analysis facilities.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.2 CENTRE HOSPITALIER UNIVERSITAIRE DE SHERBROOKE, CLINICAL RESEARCH CENTRE

Address:
Centre hospitalier universitaire de Sherbrooke
Centre de recherche clinique
3001, 12e avenue Nord
Sherbrooke (Québec)
Canada J1H 5N4

Phone/Telex: (819) 563-5555, ext. 4662

Contact: Dr. Etienne LeBel, Director

Staff: 20 senior clinical researchers, 3 administrative support staff

Research interests: Clinical research is concentrated in cardiology, endocrinology, gastroenterology, immunology, pneumology, nephrology and rheumatology.

The Centre is equipped with all the necessary facilities for pharmacological evaluation in all the phases (I to IV) of development. Furthermore, the Centre is able to proceed with biomedical instrumentation evaluation.

Contract work performed/Grants: Eli Lilly, Syntex, CIBA-GEIGY, Merck Frosst, Rhone-Poulenc, Laboratoires Nordic Inc., Pfizer, Glaxo, Smith Kline & French Canada Ltd., Beecham, Servier, Squibb Canada.

Equipment: The Clinical Research Centre is part of an ultraspecialized teaching hospital with modern diagnostic facilities including functional exploring laboratory, metabolic unit, monoclonal antibodies laboratory, analytical chemistry laboratory (GC/MS-HPLC-GCL) and modern animal care facilities. The teaching hospital gives postdoctoral training in nearly all medical specialities.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.3 UNIVERSITÉ DE SHERBROOKE, FACULTY OF SCIENCE

II.3.1 RESEARCH CENTRE FOR MECHANISMS OF SECRETION

Address: Université de Sherbrooke
Faculté des sciences
Département de biologie
Sherbrooke (Québec)
Canada J1K 2R1

Phone/Telex: (819) 821-7060

Contact: Dr. Jean Morisset, Director

Staff: 9 senior researchers, 6 research assistants, 6 technicians, 15 graduate students

Research interests: Mechanisms of secretion of exocrine glands. Growth of the digestive tract organs. Neurohormonal and peptidic receptors. Growth of domestic animals. Growth factors involved in lactation. Production of antibiotics (genetic engineering). Production of enzymes involved in chitin degradation (genetic engineering). Monoclonal antibody production.

Equipment: Animal care facilities, automated laboratory for RIA, tissue culture room, electron microscopy facility, spectrophotometers, liquid scintillation counters, ultracentrifuges, gamma counter, mass spectrophotometer, electrophoresis apparatus.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.3 UNIVERSITÉ DE SHERBROOKE, FACULTY OF SCIENCE

II.3.2 RESEARCH CENTRE FOR ORGANIC SYNTHESIS

Address: Université de Sherbrooke
Faculté des sciences
Département de chimie
Sherbrooke (Québec)
Canada J1K 2R1

Phone/Telex: (819) 821-7002 / 05-836-149

Contact: Professor Pierre Deslongchamps

Staff: 2 senior researchers (Ph.D.), 1 technician (B.Sc.), 1 administrative secretary, 3 postdoctoral fellows, 15 postgraduate students (M.Sc. and Ph.D.), 3 undergraduate students

Research interests: Total synthesis of natural products; studies on reaction mechanisms. Development of new general strategies for synthesis of natural and/or non-natural terpenoids and steroids. Macrocyclic compounds synthesis. Development of stereoelectronic effects in organic chemistry. Examples of specific syntheses: ryanodol and antibiotic erythromycin A.

Equipment: Laboratories equipped for organic synthesis. Multinuclear high field NMR spectroscopy, high resolution mass spectrometry, X-ray diffractometer, GLC, HPLC, etc.

II RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE SHERBROOKE

II.3 UNIVERSITÉ DE SHERBROOKE, FACULTY OF SCIENCE

II.3.3 CENTRE OF APPLICATION IN CALORIMETRY AND THERMODYNAMICS OF THE UNIVERSITÉ DE SHERBROOKE (CACTUS)

Address: Université de Sherbrooke
Faculté des sciences
Département de chimie
Sherbrooke (Québec)
Canada J1K 2R1

Phone/Telex: (819) 821-7569 / 058-36140 (BIBUNIV SHB)

Contact: Dr. Carmel Jolicoeur

Staff: 1 research assistant, 3 graduate students, technical support staff

Research interests: The Centre is mainly concerned with the application of flow microcalorimetry to the monitoring of bioprocesses and, at present, intensive work is being carried out on two research projects. The first is devoted to the development of a control strategy to regulate anaerobic waste water treatment bioprocesses, while the second is dedicated to the investigation of the inhibition phenomena commonly encountered in alcoholic fermentation. The Centre also has expertise in environmental toxicology, principally as regards the evaluation of the acute toxicity of various contaminants on heterogeneous microbial cultures.

Equipment: 3 flow microcalorimeters, 5 fermentors of varying volumes, 10 automated gas flow-meters with on-line data acquisition system. Access to departmental technical facilities (HPLC, RMN, mass spectrometry, UV-VIS spectrophotometry, etc.).

CHAPTER III: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.1 UNIVERSITÉ DE MONTRÉAL, FACULTY OF VETERINARY MEDICINE

III.1.1 ANIMAL REPRODUCTION CENTRE: BIOTECHNOLOGY

Address:

Université de Montréal
Faculté de médecine vétérinaire
3200, rue Sicotte
St-Hyacinthe (Québec)
Canada J2S 2M2

Phone/Telex: (514) 773-8521 / 05-830505FMVSTHY

Contact: Dr. Ronald H.F. Hunter, Ph.D.

Staff: 8 researchers (Ph.D.), 1 trainee (Ph.D.), 9 students

Research interests:

Biotechnology:

- Endocrinology
- Steroids in equine embryos
- Fertilization
- Micromanipulation
- Cytogenetics
- Embryonic development

Principal mandates

- Microenvironments in and around mammal embryos.
- Determining gestation and cause of embryonic mortality in large domestic species.
- Research into early gestational development:
  a) differentiation of gonads
  b) fertilization anomalies
  c) embryonic development and embryonic microenvironments in the oviduct
  d) changes in nucleocytoplasmic interactions

Equipment: Cathode-screen liquid-scintillation meter, HPLC chromatograph, Leitz laborlux microscope, Leitz fluorescence microscope, Wild Leitz inverted microscope, micromanipulation set, electrophoresis equipment.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.1 UNIVERSITÉ DE MONTRÉAL, FACULTY OF VETERINARY MEDICINE

III.1.2 ANIMAL REPRODUCTION CENTRE: PHARMACOLOGY

Address:
Université de Montréal
Faculté de médecine vétérinaire
3200, rue Sicotte
St-Hyacinthe (Québec)
Canada J2S 2M2

Phone/Telex: (514) 773-8521 / 05-830505FMVSTHY

Contact: Dr. Laszlo, Dr. Roth, M.V., M.Sc., Ph.D.

Staff: 2 researchers (Ph.D.), 1 trainee (Ph.D.)

Research interests:

Pharmacology:

- Comparative biomedical research
- Physiopathology of stress
- Cardiovascular receptors
- Cardiac arrhythmia

Principal mandates

- Pharmacological study of the interaction of stress hormones and their effects on utero-ovarian circulation.
- Study of volatile anesthetics in relation to the stress syndrome and malignant hyperthermia.

Contract work performed/Grants: Agriculture Canada, Conseil des recherches en pêche et agro-alimentaire du Québec.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.1 UNIVERSITÉ DE MONTRÉAL, FACULTY OF VETERINARY MEDICINE

III.1.3 RESEARCH CENTRE FOR INFECTIOUS PORCINE DISEASES

Address:
Université de Montréal
Faculté de médecine vétérinaire
3200, rue Sicotte
St-Hyacinthe (Québec)
Canada J2S 2M2

Phone/Telex: (514) 773-8521 / 05-830505FMVSTHY

Contact: Dr. Serge Larivière, M.V., Ph.D.

Staff: 10 researchers, 20 postdoctoral fellows

Research interests:

Biotechnology:

- Porcine pleuropneumonia
- Porcine colibacillary enteropathies
- Porcine atrophic rhinitis
- Streptococcus suis infections and ecopathology

Principal mandates

- Study of specific pathological conditions while assessing the general conditions affecting a herd's overall state of health.
- Study of solutions for reducing infectious diseases and of the use of antibiotics in swine in Québec, to achieve a better understanding of the bacterial diseases affecting swine production in Québec.

Equipment: Specific research equipment: Beltograph, HPLC chromatograph, scanning electronic microscope.

Contract work performed/Grants: Agriculture Canada; Conseil des recherches en pêche et agro-alimentaire du Québec; Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.1 UNIVERSITÉ DE MONTRÉAL, FACULTY OF VETERINARY MEDICINE

III.1.4 RESEARCH CENTRE FOR BOVINE STUDIES

Address: Université de Montréal
Faculté de médecine vétérinaire
3200, rue Sicotte
St-Hyacinthe (Québec)
Canada J2S 2M2

Phone/Telex: (514) 773-8521 / 05-830505FMVSTHY

Contact: Dr. Youssef Elazhary, M.V., M.Sc., Ph.D.

Staff: 10 researchers (Ph.D.), 6 trainees (Ph.D.)

Research interests: Biotechnology:

- Monoclonal antibodies and recombinant vaccines for certain respiratory and digestive tract viruses in the bovine species.

Principal mandate

- Application of molecular biology to the development of recombinant vaccines for the bovine species.

Contract work performed/Grants: Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.2 UNIVERSITÉ DE MONTRÉAL, FACULTY OF PHARMACY

III.2.1 RESEARCH CENTRE FOR PHARMACEUTICAL TECHNOLOGY

Address:	Université de Montréal Faculté de pharmacie C.P. 6128, Succ. A Montréal (Québec) Canada H3C 3J7
Phone/Telex:	(514) 343-6422
Contact:	Jacques Gagné, Dean
Staff:	3 professors, 11 graduate students, 2 research assistants, 3 technicians
Research interests:	Development of formulations having increased specificity of action for drugs. Study of controlled-release and site-directed medication-release pharmaceutical dosage forms: microencapsulation, polymeric matrices for oral administration or implantation (peptides). Formulation and evaluation of manufacturing procedures, biomineralization and the study of crystalline growth mechanisms, surface geometry by image analysis.
Contract work performed/Grants:	Laboratoires UPSA (France), Bio-Mega inc. (Laval), Stérivet Laboratories (Toronto), Canadian International Development Agency (CIDA), Glaxo Canada Ltd., Rhône-Poulenc Pharma Inc., McNeil Pharmaceutical (Canada) Ltd., Squibb, Laboratoires Nordic Inc., Roussel, Pharmascience Inc., Dermtek.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.2 UNIVERSITÉ DE MONTRÉAL, FACULTY OF PHARMACY

III.2.2 RESEARCH CENTRE FOR CLINICAL PHARMACY

Address:	Université de Montréal Faculté de pharmacie C.P. 6128, Succ. A Montréal (Québec) Canada H3C 3J7
Phone/Telex:	(514) 343-6422
Contact:	Jacques Gagné, Dean
Staff:	6 professors, 8 graduate students
Research interests:	Problems inherent to the research and development of drugs for animals and humans including the different phases of clinical experimentation (Phases I and III). Problems related to extrapolating data from animals to humans. Study of the pharmacokinetics and the pharmacodynamics of medications in patients and healthy volunteers. Epidemiology of pediculosis in Canada. Study of the ovicide potential of pediculicides. Importance of the viability of nits in the diagnosis and treatment of pediculosis. Clinical pharmacokinetics. Hepatic metabolism and toxicity of medications. Spironolactone in cirrhotic patients. Atracurium in anesthetized patients.
Contract work performed/Grants:	Jouveinal/SIPSY, Pfizer/Jouveinal, Sandoz (U.S.A.), Beecham (Britain), Riker (Britain), Sapos (Switzerland), Abbott Laboratories Ltd.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.2 UNIVERSITÉ DE MONTRÉAL, FACULTY OF PHARMACY

III.2.3 RESEARCH CENTRE FOR BIOPHARMACEUTICS

Address:	Université de Montréal Faculté de pharmacie C.P. 6128, Succ. A Montréal (Québec) Canada H3C 3J7
Phone/Telex:	(514) 343-6422
Contact:	Jacques Gagné, Dean
Staff:	2 professors, 2 graduate students, 1 technician
Research interests:	Polluting contaminant-medication interactions at the toxicological, pharmacokinetic, and pharmacological levels. Individualization of patient medication dosages using computer programs. Study of the pharmacokinetic and biopharmaceutical profile of various medications in humans, especially narcotic (opiate) and anticancer analgesics.
Contract work performed/Grants:	Rhône-Poulenc Pharma Inc., Purdue Frederick, ICN, Laboratoires De Angelis (Rome).

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.2 UNIVERSITÉ DE MONTRÉAL, FACULTY OF PHARMACY

III.2.4 RESEARCH CENTRE FOR DRUG QUALITY CONTROL

Address:	Université de Montréal Faculté de pharmacie C.P. 6128, Succ. A Montréal (Québec) Canada H3C 3J7
Phone/Telex:	(514) 343-6422
Contact:	Jacques Gagné, Dean
Staff:	2 professors, 5 graduate students, 2 technicians
Research interests:	Development of analytical methods for xenobiotics (medications) and endogenous substrates (peptides, membrane receptor proteins); specialization in chromatography and immunological testing. Exploration of inflammatory reactions; approaches to the physiopathological mechanisms of acute inflammatory reactions: application, diagnosis, treatment.
Contract work performed/Grants:	G.D. Searle & Co., Rhône-Poulenc Pharma Inc., Schering (U.S.A.), Hoechst (Belgium), Bayer (Belgium).

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.2 UNIVERSITÉ DE MONTRÉAL, FACULTY OF PHARMACY

III.2.5 RESEARCH CENTRE FOR MEDICINAL CHEMISTRY

Address: Université de Montréal
Faculté de pharmacie
C.P. 6128, Succ. A
Montréal (Québec)
Canada H3C 3J7

Phone/Telex: (514) 343-6422

Contact: Jacques Gagné, Dean

Staff: 3 professors, 5 graduate students

Research interests:

Pro-drugs: research in the field of antirheumatic medications.

Central nervous system drugs: antagonists of epilepsy and aggression.

Anticancer drugs: reduction of toxicity of nitrosourea.

Natural products: plants and plant extracts with therapeutic properties (essential oils, alkaloids, tranquilizing substances).

Contract work performed/Grants: Centre de recherche industrielle du Québec, Agriculture Canada.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.3 CLINICAL RESEARCH INSTITUTE OF MONTRÉAL

Address: Clinical Research Institute of Montreal
110, avenue des Pins Ouest
Montréal (Québec)
Canada H2W 1R7

Phone/Telex: (514) 842-1481 / 055-60398

Contact: Dr. Michel Chrétien, Director
Dr. Dominic Maestracci, Associate Director

Staff: Total of 397, including 25 laboratory directors, 4 associate directors, 18 senior researchers, 36 postdoctoral fellows, 65 graduate students, 4 research associates, 75 technicians, 15 nurses

Research interests: Cancer and immunology: molecular biology, hormone-dependent cancers, hematopoiesis and leukemia, molecular immunology.
Bioethics.
Biomedical engineering.
Hypertension: biochemistry of hypertension, experimental hypertension, experimental hypertension and vasoactive peptides, pathobiology, clinical pharmacology and cardiovascular physiology, molecular pharmacology of receptors, hormone action physiopathology, prostaglandins, autonomic nervous system.
Lipoproteins and atherosclerosis: dyslipoproteinemia and atherosclerosis, lipoprotein metabolism.
Intermediary metabolism: diabetes and carbohydrate metabolism, intermediary metabolism.
Neurobiology and behaviour.
Hormonal and neuronal peptides, biotechnology: molecular neuroendocrinology, biochemical neuroendocrinology, chemical biology and peptides research, molecular biology of eucaryotes, reproduction.
Information technology.

Contract work performed/Grants: Pharmaceutical companies: Amersham, Ayerst, Berlex Canada Inc., Bio-Mega inc., Bristol-Myers, CIBA-GEIGY, Eli Lilly, Herdt & Charton, Hoffmann-La Roche, Janssen Pharmaceutica, Knoll Pharmaceuticals, Beecham Laboratories Inc., Laboratoires Fournier, Laboratoires Nordic Inc., Langford Inc., Merck Frosst, Merrell Dow, Miles Laboratories, Pfizer, Rhône-Poulenc, Sandoz, E.R. Squibb & Sons, Sterling Drug Ltd., Warner-Lambert, Wyeth.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.4 CANCER INSTITUTE OF MONTRÉAL

Address: Cancer Institute of Montreal
1560, rue Sherbrooke Est
Montréal (Québec)
Canada H2L 4M1

Phone/Telex: (514) 876-7078
(514) 876-7492

Contact: Dr. Daniel Skup, Director

Staff: 15 researchers, 5 postdoctoral fellows, 19 technicians

Research interests:

Molecular biology:
Basic research on the molecular basis of oncology. Regulation of genetic expression. Lymphokines in neoplasia. Molecular biology of development. Oncogenes and clinical cancers. Genetic expression at the tumoral invasion stage and formation of metastases.

Virology:
Basic research on herpes viruses. Viral neoplasia. Replication and regulation of viral genetic expression. Viral latency.

Clinical oncology:
Clinical and epidemiological research on solid tumours. Expression of oncogenes in lung tumours and prognostic importance. Expression of proteases and their inhibitors in metastatic tumours. Pharmacological aspects of chemotherapy.

Equipment: Complete facilities and equipment for tissue culture, animal virology, molecular biology and genetic engineering.

Contract work performed/Grants: Medical Research Council of Canada, Fondation Notre-Dame, Fonds pour la formation de chercheurs et l'aide à la recherche, Fonds de la recherche en santé du Québec, National Cancer Institute of Canada, Ministère des Affaires sociales du Québec, The Cancer Research Society Inc., Université de Montréal, Adria, Bio-Mega inc., Hydro-Québec, ICI Pharma, The Upjohn Company.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.5 HÔPITAL SAINTE-JUSTINE RESEARCH CENTRE

Address: Hôpital Sainte-Justine
3175, chemin de la Côte-Sainte-Catherine
Montréal (Québec)
Canada H3T 1C5

Phone/Telex: (514) 345-4692

Contact: Dr. Robert Collu

Staff: 48 researchers, 9 postdoctoral fellows, 84 students, 73 assistants

Research interests:

Endocrinology-metabolism:
Basic and clinical research on hepatic and endocrinological diseases. Physiological, pharmacological, nutritional and metabolic aspects in children.

Genetics:
Basic and clinical research on genetic diseases in children.

Immunology:
Clinical research on immunological diseases in children. Diagnosis and treatment of AIDS and mothers carrying the AIDS virus.

Virology:
Basic and clinical research on viral diseases in children. Virus-cell interactions and virus-immunological system interactions.

Oncology:
Basic and clinical research on children suffering from leukemia. Pharmacological aspects of chemotherapy.

Contract work performed/Grants: A.H. Robins Canada Inc.; Aoco Ltd., (subsidiary of American Optical Company Ltd.); Beecham; Boehringer Ingelheim (Canada) Ltd.; Bristol-Myers Pharmaceutical Group; Burroughs Wellcome; CIBA-GEIGY CANADA LTD.; Du Pont Canada Inc.; Eli Lilly Canada Inc.; E.R. Squibb & Sons, Inc.; Fisons Corporation Limited; Frosst; Hoechst Canada Inc.; Hoffmann-La Roche Limited; Janssen Pharmaceutica Inc.; Johnson & Johnson Inc.; Abbott Laboratories, Limited; Laboratoires Nordic Inc.; Ross Laboratories; Winthrop Laboratories; Lederle Pharmaceuticals; Parke-Davis Canada Inc.; Pfizer; Pharmacia; Rhône-Poulenc; Roussel Canada Inc.; Sandoz; Schering; Smith Kline & French Canada Ltd.; The Upjohn Company of Canada; Wyeth Ltd. and some 20 government agencies, associations and institutes.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.6 HÔPITAL DU SACRÉ-COEUR RESEARCH CENTRE

Address: Hôpital du Sacré-Coeur
5400, boul. Gouin
Montréal (Québec)
Canada H4J 1C5

Phone/Telex: (514) 338-2172

Contact: Dr. Réginald Nadeau

Staff: 25 professional researchers, 12 associate researchers, 11 postdoctoral fellows, 57 graduate students, 40 support staff

Research interests:

Cardiovascular diseases:
Cardiac electrophysiology and arrhythmias. Cardiac insufficiency and neurohumeral control of blood volume. Hypertension and study of sympathetic nervous system. Pharmacokinetics of cardiovascular drugs and study of medicinal interactions.

Sleep disorders:
Investigation of human sleep disturbances and alertness problems. Biorhythms and work schedules.

Respiratory diseases:
Asthma and bronchial hyperexcitability. Intensive respiratory care and pulmonary edema. Mechanics and epidemiology of respiratory diseases. Occupational pulmonary diseases.

Renal diseases:
Antidiuretic hormone and diabetes insipidus. Chronic renal insufficiency and pharmacokinetics. Vasoconstrictors and coagulation.

Genetic diseases:
Identification, using immunological techniques, of genetic characteristics of susceptibility to various diseases. Breakdown of DNA by chemotherapy.

Contract work performed/Grants: Association pulmonaire du Québec; Medical Research Council of Canada; Natural Sciences and Engineering Research Council of Canada; Fondation du Québec des maladies du coeur; Kidney Foundation of Canada; Institut de recherche en santé au travail; Fonds de la recherche en santé du Québec; Bristol-Myers; Genentech Inc.; E.R. Squibb & Sons, Inc.; Merck Frosst Canada Inc.; Squibb Canada Inc.; Parke-Davis; Abbott; ICI Pharma; Servier; Laboratoires Nordic Inc.; Équipement Moniteur Inc.; Knoll Pharmaceuticals; Astra; Eli Lilly; CIBA-GEIGY; The Upjohn Company; Beecham; Fisons Corporation Limited.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.7 MONTRÉAL HEART INSTITUTE

Address: Montreal Heart Institute
5000, rue Bélanger Est
Montréal (Québec)
Canada H1T 1C8

Phone/Telex: (514) 593-2508

Contact: Dr. David D. Waters

Staff: 25 researchers

Research interests:

Cardiovascular:
Basic research on cardiovascular diseases. Angiography, electrophysiology and clinical pharmacology in heart partients. Therapeutic aspect of exercise.

Nuclear medicine:
Imaging and diagnostic techniques in radiology.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.8 HÔPITAL NOTRE-DAME RESEARCH CENTRE

Address: Hôpital Notre-Dame
1560, rue Sherbrooke Est
Montréal (Québec)
Canada H2L 4M1

Phone/Telex: (514) 876-7059

Contact: Dr. André Lanthier

Staff: 18 researchers

Research interests:

Neuroendocrinology:
Basic research on the physiological and pharmacological aspects of the growth hormone and limbic system. Identification and chemical characterization of neuropeptides. Reproductive biology.

Nutrition and metabolism:
Basic and clinical research. Metabolism of ketonic bodies and of lipids. Cellular control of hyperglycemia.

Steroids:
Basic research. Comparative study of steroids.

Immunology:
Basic and clinical research. Regulation of IgE synthesis in humans. Immunological interactions in allergy patients.

Nephrology:
Basic and clinical research. Physiological, pharmacological and metabolical study of the kidneys.

Rheumatology:
Basic and clinical research. Biochemical, pharmacological and immunohistochemical study in osteoarthritic diseases.

Anesthesia:
Basic and clinical research. Cardiovascular aspects of anesthesia: pharmacological responses.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.9 HÔPITAL MAISONNEUVE-ROSEMONT RESEARCH CENTRE

Address:	Hôpital Maisonneuve-Rosemont 5415, boul. de l'Assomption Montréal (Québec) Canada H1T 2M4
Phone/Telex:	(514) 252-3555
Contact:	Dr. Alcide Chapdelaine, M.D., M.Sc., Director
Staff:	13 senior researchers, 2 associate researchers, 2 postdoctoral fellows, 15 technicians
Research interests:	Benign hyperplasia and cancer of the prostate. Breast cancer. Cloning of the oviductin gene. Role of selenium during reproduction. Studies on the differentiation of mice embryos. Biochemistry of peptides and proteins. Studies on spermatozoa-ova interaction mechanisms. Biochemistry of male gametes. Molecular cloning of ovine placental lactogen. Regulation of expression of angiotensinogen gene. Regulation of expression of somatostatin gene. Effect of suppressing the somatotrope hormone on diabetic retinitis. Transplantation of immunoisolated Langerhans islets by microencapsulation in the treatment of diabetes. Effect of a converting enzyme inhibitor on proteinuria in Type I diabetes. Role of dopamine in sodium transport. Study of calcium and phosphorus transport by cellular membranes of the kidneys and placenta. Study of the immunological complications of medullary transplants.
Equipment:	Equipment used in molecular biology and genetic engineering. HPLC system, gamma counters, gas chromatography, electrophoresis systems (SDS-PAGE, IEF), cell culture systems, cell counters.
Contract work performed/Grants:	Medical Research Council of Canada, Fonds de la recherche en santé du Québec, Kidney Foundation of Canada, Fonds pour la formation de chercheurs et l'aide à la recherche, Université de Montréal (CEDAR, CAFIR), Ortho Pharmaceutical (Canada) Ltd., Pharmascience Inc., Interpharm Inc., Noranda Inc., CIBA-GEIGY, Sandoz.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.10 HÔPITAL LOUIS-HIPPOLYTE-LAFONTAINE PSYCHIATRIC RESEARCH CENTRE

Address: Hôpital Louis Hippolyte-Lafontaine
7401, rue Hochelaga
Montréal (Québec)
Canada H1N 3M5

Phone/Telex: (514) 251-4015

Contact: Dr. Yves Lamontagne

Staff: 7 senior researchers, 3 associate researchers, 3 postdoctoral students, 11 assistant researchers

Research interests: Treatment of the mentally ill from the biological, psychological and social aspects:

- Biological aspect: Studies on the organic causes of certain mental illnesses such as schizophrenia, manic depressive psychosis and anxiety.

- Psychological aspect: Studies on immersion therapy for persons suffering from phobias or obsessive behaviour; studies on various relaxation techniques used in the treatment of anxiety, nicotine addiction and sexual dysfunction.

- Social aspect: Study on the scope of mental diseases in Quebec and the resulting economic and social impact; studies on alcohol and drug use among young people and the proposed solutions to these problems; violence towards women; revolving door syndrome among psychiatric patients; various methods for preventing mental illnesses. Establishment of one of the first studies on the problem of homelessness and its solutions.

Equipment: Atomic absorption device, refrigerated centrifuges, electronic scale.

Contract work performed/Grants: Bristol-Myers, CIBA-GEIGY CANADA LTD., Medical Research Council of Canada, Employment and Immigration Canada, Fondation des maladies mentales, Fonds de la recherche en santé du Québec, Health and Welfare Canada, Université de Montréal, The Upjohn Company of Canada.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.11 ANDRÉ VIALLET CLINICAL RESEARCH CENTRE

Address:
Hôpital Saint-Luc
1058, rue Saint-Denis
Montréal (Québec)
Canada H2X 3J4

Phone/Telex:
(514) 281-2462

Contact:
Dr. Pierre-Michel Huet, Director

Staff:
22 researchers, 3 postdoctoral students, 2 guest researchers

Research interests:

Physiopathology:
Basic and clinical research on degenerative diseases of the liver. Alcoholic cirrhosis; physiology of the liver; immunological, physiological, pharmacological and metabolic aspects of liver transplants. Neurohepatology.

Endocrinology-metabolism:
Basic research on calcium and phosphorus metabolism. Insulin resistance and secretion in non-insulin-dependent diabetes mellitus.

Clinical oncology:
Surgical and therapeutic research on breast cancer.

Physiopathology of diseases of the digestive tract.

Microbiology:
Resistance and sensitivity of bacteria to antibiotics.

Collaboration with other institutions:
France: The Hôpital Saint-Antoine unit directed by Dr. R. Poupon.

Spain: Dr. Bosch, University of Barcelona.

Contract work performed/Grants:
Squibb Canada Inc.; E.R. Squibb & Sons, Inc.; Janssen Pharmaceutica Inc.; Ayerst; Rhône-Poulenc Pharma Inc.; Sandoz; Jouveinal Inc.; Inter Falk Canada; Compagnie Ospal; Hoechst Canada Inc.; Laboratoires Nordic Inc.; Eli Lilly, Indianapolis, Md., U.S.A.; Health and Welfare Canada; Merck Frosst; Hoffmann-La Roche.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.12 UNIVERSITÉ DE MONTRÉAL, FACULTY OF MEDICINE

III.12.1 RESEARCH CENTRE FOR NEUROLOGICAL SCIENCE

Address:	**Université de Montréal** **Faculté de médecine** **C.P. 6128, Succ. A** **Montréal (Québec)** **Canada H3C 3J7**
Phone/Telex:	**(514) 343-6366**
Contact:	**Dr. Yves Lamarre, Director**
Staff:	**42 senior researchers, 4 postdoctoral fellows, 55 student researchers, over 50 research assistants and technicians**
Research interests:	**Study of the nervous system based on the following general themes: anatomy, physiology and physiopathology of motor function; anatomy and physiology of central aminergic systems; cardiovascular regulating mechanisms; neuropharmacology and neurochemistry of the central nervous system; neuromuscular physiopathology; neurophysiology of sight; physiopathology of speech and physiological and pathological mechanisms of sleep; chronobiology and physiobiology of pain.**
Equipment:	**Electronic microscopes, digital computers, scintillation counters, HPLC systems, etc.**
Contract work performed/Grants:	**Medical Research Council of Canada, Fonds de la recherche en santé du Québec.**

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.13 UNIVERSITÉ DE MONTRÉAL, FACULTY OF SCIENCES

III.13.1 RESEARCH CENTRE FOR BIOCHEMICAL SYNTHESIS

Address:	Université de Montréal Département de biochimie C.P. 6128, Succ. A Montréal (Québec) Canada H3C 3J7
Phone/Telex:	(514) 343-6327
Contact:	Philippe Crine, Director, Guy Boileau, Luc Desgroseillers
Staff:	3 researchers, 5 postdoctoral fellows, 12 graduate students, 1 research assistant, 5 technicians
Research interests:	Molecular biology of peptidergic systems; study of post-translational changes in peptide precursors; study of the biosynthesis and maturation of pro-opiomelanocortin (POMC); targeting of neuropeptides towards secretion granules, introduction of POMC-complementary DNA into the eucaryote expression vectors so as to induce synthesis in heterologous cells and definition of the amino acids involved in the structure of the active site. Studies on relationships between the structure and function of eucaryote mRNA. Secretion mechanism of proteinic hormones. Study of the regulation of Aplysia californica neuropeptides. Study of the egg-releasing hormone receptor. Study of autoimmune diseases of the nervous system.
Contract work performed/Grants:	Plant Biotechnology Institute and Biotechnology Research Institute (National Research Council of Canada), Diagnostic Chemicals Ltd. (Charlottetown, P.E.I.), Schering Corporation (U.S.), CIBA-GEIGY CANADA LTD.

III RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DE MONTRÉAL

III.13 UNIVERSITÉ DE MONTRÉAL, FACULTY OF SCIENCES

III.13.2 RESEARCH CENTRE FOR ORGANIC CHEMISTRY SYNTHESIS

Address:
Université de Montréal
Département de chimie
C.P. 6128, Succ. A
Montréal (Québec)
Canada H3C 3J7

Phone/Telex: (514) 343-6738

Contact: Stephen Hanessian, Hermann Dugas, Denis Gravel, Kosta Steliou, James D. West

Staff: 5 staff researchers, 2 guest researchers, 11 postdoctoral fellows, 40 graduate students, 4 research assistants, 1 laboratory technician

Research interests: Pharmaceutical chemistry and organic synthesis:

Principal mandates

- Organic synthesis methodology, use of chiral precursors in the synthesis of antibiotics and antitumour agents, development of models and software programs for the use of chiral precursors.
- Fixation of peptides exhibiting interesting biological activity on various supports (macrocycles, etc).
- Studies on substrate organic reactions linked to various organometallic products and on multidentate Lewis acid.
- Synthesis methodology, use of S_2 in the total synthesis of biologically active molecules (prostaglandins and synthetic prostanoids).
- Synthesis methodology, new reagents and boron chemistry. Therapeutic chemistry.
- Biomimetric membranes and their interactions with antibiotic ionophores. Use of polymer vesicles, encapsulation and salting out of biologically active molecules.

Contract work performed/Grants: Collaboration with a great many pharmaceutical companies, such as Merck Frosst, CIBA-GEIGY, Hoffmann-La Roche, Farmitalia and Eli Lilly.

CHAPTER IV: RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.1 ARTIFICIAL CELLS AND ORGANS RESEARCH CENTRE

Address:	McGill University McIntyre Medical Sciences Building, Room 1006 3655, rue Drummond Montréal (Québec) Canada H3G 1Y6
Phone/Telex:	(514) 398-3512
Contact:	Dr. Thomas M.S. Chang, Director
Staff:	9 academic and research, 27 affiliated academic, 4 non-academic
Research interests:	Research and consultation in the biotechnological, biomedical, clinical and technological aspects of the following areas: artificial cells; immobilized cells, enzymes, microorganisms; microencapsulation; adsorbents including charcoal, resins, biosorbents and immunosorbents; blood substitutes based on modified hemoglobin; drug delivery systems; artificial kidney; artificial liver; detoxifier; experimental enzyme therapy; enzyme engineering; biomaterials. This is an interdisciplinary group with expertise in biotechnology, biophysics, biochemistry, enzyme engineering, biomedical engineering, physiology, clinical medicine, chemistry, polymer chemistry and other areas.
Contract work performed/Grants:	Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources. Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.2 BIOMEDICAL ENGINEERING UNIT

Address: McGill University
Lyman Duff Medical Sciences Building
3775, rue University
Montréal (Québec)
Canada H3A 2B4

Phone/Telex: (514) 398-6736

Contact: Dr. Robert E. Kearney, Director

Staff: 7 academic, 6 affiliated academic, 1 non-academic

Research interests: Research, teaching and consultation in the application of engineering methods and computer technology in medicine and biology. Current research: neuromuscular control, muscle mechanics, vestibular systems, neural communication, signal analysis, medical database systems, speech production and computer applications in medical research.

Equipment: The Unit operates extensive computing facilities including five Micro VAX computers in a Local Area Cluster.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.3 McGILL CANCER CENTRE

Address: McGill University
McIntyre Medical Sciences Building, Room 701
3655, rue Drummond
Montréal (Québec)
Canada H3G 1Y6

Phone/Telex: (514) 398-3535

Contact: Dr. Clifford Stanners, Director

Staff: 20 academic and research, 35 affiliated academic, 20 non-academic

Research interests: The Centre is responsible for coordination in cancer-related activities including research both basic and clinical, patient care, medical and graduate teaching and epidemiology in the Faculties of Medicine and Graduate Studies and Research and the University-affiliated teaching hospitals. Current research interests of the staff members include the use of genetic and immunologic probes in the analysis and treatment of tumours, the study of cell surfaces of malignant cells, mechanisms of cell replication and design of computer-based analytic hardware systems.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.4 ROYAL VICTORIA HOSPITAL RESEARCH INSTITUTE

Address: Royal Victoria Hospital
687, avenue des Pins Ouest
Montréal (Québec)
Canada H3A 1A1

Phone/Telex: (514) 843-1517

Contact: Dr. Harry M. Shizgal

Staff: 268

Research interests: Research at the Royal Victoria Hospital Research Institute centres around systems and diseases and relates the fundamental and clinical sciences to epidemiology and evaluation of health care. A transplantation program (including bone marrow, kidney, lung, heart and liver) is backed by a sophisticated program of basic science in immunology, infection and nutrition. A comprehensive program in acute and chronic respiratory diseases ranges from unravelling the mechanism of muscle fatigue to therapeutic intervention and epidemiology. Endocrine and metabolic disorders include studies on regulatory fetal pituitary peptides; mechanism of control of diabetes and regulation of insulin receptors; mechanism of action of thyroid hormones at the molecular and cellular level; calcium metabolism and the complex control thereof by parathyroid hormone as expressed at the cellular and molecular level. In cardiovascular diseases special emphasis is placed on lipid metabolism, nutritional intake, cholesterol and lipoprotein formation and disposition in the heart and circulation. Reproductive endocrinology includes studies on the ovarian cycle, normal and abnormal ovulation as well as the aging phenomenon as influenced by interaction between the brain and the ovaries. Investigations of male reproduction examine the molecular and biochemical events associated with spermatogenesis and their control by the hypothalamic-pituitary axis. In nephrology investigators study renal physiology and hepato-renal disease with the concomitant ascites as result of renal failure. Hematologic studies include erythropoiesis and myclopoiesis specifically related to folate metabolism and the therapy of leukemia. Perinatology encompasses pregnancy-induced hypertension, cellular metabolism in the myometrium at the outset of parturition, and long-term follow-up studies of high-risk newborns (particularly prematures). AIDS is the focus of comprehensive epidemiologic studies particularly related to immune functions and is also being addressed from the perspective of legal and ethical concepts.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $50 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources. Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.5 CENTRE FOR HUMAN GENETICS

Address: McGill University
Stewart Biology Building, Room N5/13
1205, avenue Docteur Penfield
Montréal (Québec)
Canada H3A 1B1

Phone/Telex: (514) 398-3600

Contact: Dr. Leonard Pinsky, Director

Staff: 40 academic and research, 1 non-academic

Research interests: The Centre provides a corporate base for scientists working on problems related to human genetics in McGill University hospitals and research laboratories throughout the city. Its purpose is to coordinate teaching in human genetics, develop teaching and consultative programs in areas where genetics is underrepresented, encourage communication and collaboration between genetics units and promote the progress of research in genetics and its application to health care. Current research interests include gene structure, mammalian gene regulation, human skin fibroblasts, cell culture, genetic counselling and pharmacotheraphy, oncogenic transformation of mammalian cells, glycoprotein biosynthesis, application of recombinant DNA to human genetic screening.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.6 McGILL CENTRE FOR THE STUDY OF REPRODUCTION

Address:	Strathcona Building 3640, rue University Montréal (Québec) Canada H3G 2B2
Phone/Telex:	(514) 398-6331
Contact:	Dr. James R. Brawer
Staff:	14 academic and research, 19 affiliated academic, 17 non-academic
Research interests:	Collaborative research studies in reproduction have resulted in a confederation of investigators representing the Departments of Anatomy, Animal Science, Medicine, Obstetrics & Gynecology, Pharmacology, Physiology and Urology. Subjects of research encompass both basic science and clinical investigations. Subjects of particular interest are effects of gonadal steroids on the brain-pituitary axis and hypothalamic structure, polycystic ovarian disease, neuroendocrinology of anavulatory syndromes and follicular atresia, environmental influences on reproductive function, physiological basis of premenstrual tension, the regulation of epididymal enzymes, fetal-placental endocrinology, normal and abnormal development and teratology and reproductive aging. A primary objective of the Centre is the training of graduate students and postgraduate fellows in the field of reproduction with a multidisciplinary approach.
Contract work performed/Grants:	Fonds pour la formation de chercheurs et l'aide à la recherche, Medical Research Council of Canada, U.S. National Institute of Health, Canadian Geriatrics Research Society and Foundation.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.7 McGILL COLLABORATIVE PROGRAM IN PHARMACOEPIDEMIOLOGY (MCP-P)

Address: McGill University
Department of Epidemiology & Biostatistics
Purvis Hall
1020, avenue des Pins
Montréal (Québec)
Canada H3A 1A2

Phone/Telex: (514) 398-6259

Contact: Dr. Walter O. Spitzer

Staff: 7

Program description: The MCP-P is being developed as a distinct entity of research, teaching and research services related to pharmacoepidemiology. An innovative feature of the MCP-P is that it fosters collaboration between industry and government in developing not only researchers but management executives capable of sophisticated appraisal of epidemiologic research. The educational component of the MCP-P stresses the monitoring of benefits and risks of prescription and nonprescription drugs and biologicals in a population at large. The Centre is also prepared to carry out extensive postmarketing drug surveyance studies.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.8 DEPARTMENT OF PHARMACOLOGY & THERAPEUTICS

Address: McGill University
McIntyre Medical Sciences Building
3655, rue Drummond
Montréal (Québec)
Canada H3G 1Y6

Phone/Telex: (514) 398-3621

Contact: Dr. A.C. Cuello, Chairman

Staff: 25

Research interests: Research is being conducted in the following areas: development of biotechnological tools for research and diagnostic systems, study of the effects of drugs on the brain, mechanism of action of anticancer drugs, effects and potential risks of pesticides and herbicides, advances in the pharmacology of heart disease and blood pressure, mechanism of action of illicit drugs, effects of drugs on lung and bone diseases, prevention and treatment of self poisoning.

Particular studies include: Immunological approaches to neuropharmacology: This research is geared to obtain further insight in cellular and subcellular aspects of the interactions of transmitter-specific systems among themselves and with tropic factor such as nerve growth factor (NGF) and also to correlate immunologically defined antigens with specific subsets of neural cells. Peptides of sensory modulating molecules: By combining microsurgery and stereotaxic techniques with immunohistochemistry, the involvement of substance P in central nervous activities is being explored. Furthermore, extensive hybridoma technology enables the introduction of novel principles related to the use of monoclonal antibodies. Central chrolinergic neurons: Investigations compare the in vivo and in vitro trophic actions of monosialoganglioside GMI and of nerve growth factor (NGF) over defined forebrain chrolinergic neurons and, in particular, investigate interaction between these two agents. Particular attention is focussed on neuronal degeneration.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.9 MEDICAL PHYSICS UNIT

Address: McGill University
Lyman Duff Medical Sciences Building
3775, rue University
Montréal (Québec)
Canada H3A 2B4

Phone/Telex: (514) 398-4198

Contact: Dr. Montague Cohen

Research staff: 10

Research interests: The Medical Physics Unit is a teaching and research unit concerned with the application of the principles and methodology of physics to medicine and biology, especially (but not exclusively) in radiation medicine, i.e., diagnostic radiology, nuclear medicine and radiation oncology. The teaching program includes an M.Sc. in Medical Radiation Physics (with a strong mandatory course component) and courses in Physics for Residents in Diagnostic Radiology and Nuclear Medicine. Research includes various aspects of physics and computing applied to diagnostic imaging (e.g. improvements of image characteristics in computer tomography, advanced image processing on a microcomputer, development of digital techniques, physical aspects of magnetic resonance imaging, stereoscopic display systems, solid state imaging, development of a new modality of ultrasonic imaging, organ doses in diagnostic radiology), neutron activation analysis, dosimetry applied to radiation therapy (e.g. development of new irradiation techniques such as whole-body electron irradiation and stereotoxic radiosurgery, quantitation of computed tomography applied to radiation treatment planning) and physical aspects of hyperthermia.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.10 McGILL CENTRE FOR TROPICAL DISEASES

Address: Montreal General Hospital
1650, avenue Cedar
Montréal (Québec)
Canada H3G 1A4

Phone/Telex: (514) 937-6011, ext. 3870

Contact: Dr. J. Richard MacLean

Research staff: 5

Research interests: The Centre has a clinical responsibility for the health care and surveillance of Canadians travelling to, living in, or emigrating from the tropics, as well as a responsibility for research in the clinical and basic sciences of tropical medicine and clinical parasitology. Research presently in the areas of giardiasis, trichinosis, and the epidemiology of medical problems in refugees and travellers will continue and expand.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.11 McGILL CENTRE FOR MEDICINE, ETHICS AND LAW

Address: 1110, avenue des Pins Ouest
Montréal (Québec)
Canada H3A 1A3

Phone/Telex: (514) 398-7400

Contact: Dr. Margaret A.G. Somerville

Research staff: 13

Research interests: The Centre conducts theoretical and practical research, including empirical research in the clinical setting. Centre members teach in the area of transdisciplinary studies in medicine, ethics and law, including subspecialities such as law and psychiatry. The Centre is also active in the day-to-day clinical context through participation of its members in the work of the McGill teaching hospitals.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.12 SCHOOL OF OCCUPATIONAL HEALTH

Address: Charles Meredith House
1130, avenue des Pins
Montréal (Québec)
Canada H3A 1A3

Phone/Telex: (514) 398-4227

Contact: Dr. Gilles Thériault

Research staff: 30

Research interests: The School of Occupational Health is a centre for graduate education and advanced research in occupational health sciences. Research activities include the identification of agents or factors which affect health and safety, studies of the detailed relationships between such factors and disease, improvement of methods of monitoring the employee and his work environment, and the improvement of methods of controlling the environment or modifying work practices to reduce occupational health problems. Evaluation of ongoing programs is also part of the School's research activities.

The research projects currently in progress can be grouped under five major themes:

- Epidemiological studies related to cancer and chronic diseases
- Environmental studies
- Dust disease research activities
- Neurobehavioural research activities
- Biological monitoring of exposure to workplace contaminants

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.13 COGNITIVE SCIENCE IN MEDICINE

Address: McGill University
Centre for Medical Education
McIntyre Medical Sciences Building
Room 529
3655, rue Drummond
Montréal (Québec)
Canada H3A 1Y6

Phone/Telex: (514) 398-4989

Contact: Dr. Vimla L. Patel

Research staff: 20

Research interests: Research aims at applying theories and techniques developed in cognitive science and the capabilities of microcomputers to address issues pertinent to professional education and training in medicine. Unique contributions are made to the following areas where the research has empirical, theoretical and practical significance:

- Diagnostic problem solving by experts/subexperts/novices using an on-line computer environment; diagnostic reasonings as a function of task difficulty; medical problem solving
- Interactive problem solving: doctor-patient interview, experts/residents/students
- Modelling biomedical expertise: experts/subexperts/students at various levels
- Modelling diagnostic explanation
- Maintenance of medical expertise - continuing medical education
- Improving technical documents for the administration of pharmaceutical products
- Empirical investigations of learning in intelligent tutoring systems

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.14 INSTITUTE OF PARASITOLOGY

Address: Macdonald College
Ste-Anne-de-Bellevue (Québec)
Canada H9X 1C0

Phone/Telex: (514) 398-7722

Contact: Dr. Roger Prichard

Research staff: 12

Research interests: The Institute is the only university centre in Canada devoted to the study of parasites. Using the techniques of monoclonal antibody production, investigators aim towards the development of a new era of diagnostics based on parasite antigen rather than host antibodies. Specific parasite receptors are being investigated with monoclonal antibodies to identify those that may be amplified by recombinant DNA to be used for vaccination.

The Institute also serves as the National Reference Centre of Parasitology (Serology) for Health and Welfare Canada and performs serological tests for a number of human parasitic infections identified in the 10 provinces and some major hospitals, including the McGill Centre for Tropical Diseases at the Montréal General Hospital.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.15 DOUGLAS HOSPITAL RESEARCH CENTRE (DHRC)

Address: Douglas Hospital
6875, boul. Lasalle
Montréal (Québec)
Canada H4A 1R3

Phone/Telex: (514) 761-6131, ext. 2320

Contact: Dr. N.P.V. Nair

Research staff: 14

Research interests: Normal aging in the human brain and Alzheimers's Disease: Study of effect of aging on various neurotransmitters, peptides and their receptors in experimental animals, autopsied human brains from Alzheimer's Disease subjects and normal subjects. Depression: Clinical studies on potential biochemical markers of depression and identification of the site(s) of antidepressant drug action in the CNS. Schizophrenia: Investigation of the effect of steroids and various psychoactive drugs on catecholaminergic function in normal subjects. Evaluation of neuroleptics in treatment of resistant schizophrenic patients. Alcoholism: Study of the genetic predisposition to alcoholism. Development and evaluation of innovative treatments for alcoholism. Phychosocial research: Psychiatric epidemiology. Psychosocial and cultural factors which influence the course of serious psychiatric problems. The psychosocial factors that influence certain health problems among the elderly. How various types of programs and resources contribute to the deinstitutionalization of patients and how these resources and programs teach the target individuals or milieu.

In addition, the DHRC was chosen by the WHO to be a collaborating centre to carry out multinational projects in biological and epidemiological psychiatry.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.16 SIR MORTIMER B. DAVIS-JEWISH GENERAL HOSPITAL

Address: Jewish General Hospital
3755, chemin de la Côte-Ste-Catherine
Montréal (Québec)
Canada H3T 1E2

Phone/Telex: (514) 340-8222

Contact: Dr. Norman Kalant

Research staff: 44

Research interests: Fundamental and clinical research activities related to the following: Aging: Control of cell senescence. Diet and aging. Metabolism: Insulin and diabetes. Iron metabolism and storage. Molecular biology: Structure and function of ribosomes. Control of protein synthesis by RNA. Control of interferon gene expression. Cancer: Fundamental and clinical studies of cancer (breast, colon, leukemia). Cardiovascular: Blood flow in brain following subarachnoid hemorrhage. Biomaterials trials in vascular grafting. Ventricular changes after myocardial infarction. Role of vascular matrix in atherosclerosis and pulmonary hypertension. Angiogenesis in atherosclerosis. Infectious diseases: AIDS (detection and transmission), clinical trials of antiviral agents. Obstetrics & Gynecology: Steroid hormones and the menopause. Endometrial hyperplasia and neoplasia. Genetics: Genetic abnormalities and birth defects. Genetic defects in responsiveness to testosterone. Psychosocial: Patients and staff attitudes to illness and care. Public health aspects of mental illness. Determinants of sexual dysfunction. Quality of life following cancer surgery. Rehabilitative nursing for cancer patients.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.17 McGILL UNIVERSITY-MONTRÉAL CHILDREN'S HOSPITAL RESEARCH INSTITUTE

Address: Place Toulon
Montréal Children's Hospital
2300, rue Tupper
Montréal (Québec)
Canada H3H 1P3

Phone/Telex: (514) 934-4300

Contact: Ms. Danuta Rylski, Administrative Director

Research staff: 73

Research interests: Fundamental, clinical and epidemiological research activities related to the following: medical, biochemical and molecular genetics; endocrinology; respiratory and newborn medicine; neonatal pharmacology; hematology/oncology; gastroenterology; nephrology; infectious diseases; experimental surgery; child psychology and health care delivery and prevention.

Research efforts have concentrated on several specific disorders affecting children (e.g. diabetes, cystic fibrosis, abnormal growth, learning disabilities, hyperactivity, and other numerous genetic-related diseases).

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.18 MONTRÉAL GENERAL HOSPITAL RESEARCH INSTITUTE

Address: Montréal General Hospital
1650, avenue Cedar
Montréal (Québec)
Canada H3G 1A4

Phone/Telex: (514) 937-6011, ext. 8036

Contact: Dr. J. Shuster

Research staff: 70

Research interests: Immunology, including Human Tumour Antigen, Host Resistance and Acquired Immune Deficiency Syndrome (AIDS) or AIDS-related diseases. Neuroscience, including nerve regeneration; fundamental and clinical oncology, cardiology and hematology, as well as basic investigations into membrane transport and exchanges particularly in the gastrointestinal system. Extensive clinical epidemiologic studies are conducted in neoplastic and vascular diseases.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.19 McGILL CENTRE FOR STUDIES IN AGE AND AGING

Address: Montréal General Hospital
1650, avenue Cedar
Montréal (Québec)
Canada H3G 1A4

Phone/Telex: (514) 934-8015

Contact: Dr. Serge Gauthier

Research interests: The specific goals of the Centre are: 1) to bring together investigators in the basic and applied medical sciences, the social sciences, and other disciplines, to create a greater knowledge base in our understanding of the aging process; 2) to serve as a focus for education and training of those individuals concerned with the elderly; 3) to transfer the newly created knowledge to those institutions and organizations actually giving service and care to the aged; and 4) to identify those parts of the aging process which are preventable or capable of being modified, to assist the individual aged person in coping with the problems of being elderly and ultimately, through those processes, to benefit mankind.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

IV RESEARCH CENTRES AFFILIATED WITH McGILL UNIVERSITY

IV.20 MONTRÉAL NEUROLOGICAL INSTITUTE

Address: 3801, rue University
Room 604
Montréal (Québec)
Canada H3A 2B4

Phone/Telex: (514) 284-4655

Contact: Dr. Donald Baxter

Research staff: 52

Research interests: The Institute administers graduate and research programs in neurology and neurosurgery and provides clinical care in disorders of the nervous systems. The main areas of fundamental and clinical research include: Neurochemistry: Metabolic changes that accompany over-excitation in the brain, focal or ischemic brain lesions and changes in receptor activity observed in the cortex of humans or animals with epilepsy. Neuroanatomy: Distribution at the ultrastructural level of aminergic or peptidergic receptors in the brain. Neuropsychology: Elucidation of functional areas of the human brain related to verbal and nonverbal memory stimulation in the temporal lobes, the role of the hippocampus in object recognition and the implications of the frontal lobes in the temporal sequence of events. Studies of biochemical and genetic factors that may influence the assembly of sarcotubular proteins in muscles and result in histological and cytological changes as can be observed in tissue cultures as well as in numerous cellular disorders in experimental animals. The brain imaging group performs extensive studies with position emission tomography on individuals afflicted with lesions due to ischemia, epilepsy, brain tumours and dementia. The elaboration of computerized information obtained from the utilization of stereotactic methodology with scintiography and angiography permits the development of more precise and safe approaches to diagnosis and treatment.

Contract work performed/Grants: Sponsored medical research at McGill University accounts at the moment for more than $51 million. The sponsoring organizations include federal and provincial governmental sources, foundations, as well as industrial sources.

Extensive collaboration takes place in the research institutes and teaching hospitals with regard to clinical trials and other projects with the pharmaceutical industry.

CHAPTER V: RESEARCH CENTRES AFFILIATED WITH CONCORDIA UNIVERSITY

V RESEARCH CENTRES AFFILIATED WITH CONCORDIA UNIVERSITY

V.1 RESEARCH CENTRE FOR NEUROBIOLOGICAL BEHAVIOUR

Address:

Concordia University
Pavillon Hall 1013
1455, boul. De Maisonneuve Ouest
Montréal (Québec)
Canada H3G 1M8

Phone/Telex: (514) 848-2195

Contact: Roy A. Wise, Director

Staff: 6 senior researchers

Research interests: Behavioural pharmacology of addiction and motivation:

- Mechanisms of brain stimulation reward
- Mechanisms of psychomotor stimulant reward
- Mechanisms of opiate reward
- Correlates and side effects of opiate reward
- Mechanisms of ethanol reward
- Mechanisms of food reward
- Hormonal effects on motivated behaviour
- Effects of stress and stress hormones on behaviour

Equipment: MicroVAX II computer network, high pressure liquid chromatograph and gas chromatograph (for measurement of brain chemical and drug concentrations), fluorescence microscope (for fluorescence histochemistry for visualization of labelled neurons), microprocessor-controlled equipment (for quantification and control of brain stimulation reward, drug reward, drinking, feeding, and locomotion).

V RESEARCH CENTRES AFFILIATED WITH CONCORDIA UNIVERSITY

V.2 PHARMACEUTICAL MARKETING RESEARCH

Address:	Concordia University Sir George Williams Campus 1455, boul. De Maisonneuve Ouest Montréal (Québec) Canada H3G 1M8
Phone/Telex	(514) 848-2740
Contact:	Dr. K.L. McGown, Ph.D.
Staff:	6 researchers
Research interests:	Marketing management & public policy issues in pharmaceutical health care management
Contract work performed/Grants:	Merck Frosst, Squibb, Ortho, Parke-Davis, The UpJohn Company, Sandoz, Social Sciences and Humanities Research Council of Canada.

CHAPTER VI: RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DU QUÉBEC

VI RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DU QUÉBEC

VI.1 UNIVERSITÉ DU QUÉBEC À MONTRÉAL

VI.1.1 RESEARCH CENTRE FOR IMMUNOTOXICOLOGY

Address: Université du Québec à Montréal
C.P. 8888, Succ. A
Montréal (Québec)
Canada H3C 3P8

Phone/Telex: (514) 282-3535

Contact: Professor Michel Fournier, Ph.D., Director

Staff: 12 professors and graduate students

Research interests: Immunotoxicology of environmental or industrial xenobiotics.

Applied immunotechnology:

- Environmental studies (immunotoxicity, genotoxicity, carcinogenicity)
- Drug evaluation (pharmaceutical industries)
- Occupational health

Equipment: Flux cytofluorometer, laboratory for cell characterization using immunological techniques (fluorescence microscopy, computer image analysis, etc.).

Contract work performed/Grants: Bio-Research Laboratories Ltd., Institut Mérieux.

VI RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DU QUÉBEC

VI.2 INSTITUT ARMAND-FRAPPIER

VI.2.1 RESEARCH CENTRE FOR APPLIED MICROBIOLOGY

Address: Institut Armand-Frappier
531, boul. des Prairies
Laval (Québec)
Canada H7V 1B7

Phone/Telex: (514) 687-5010 / 055-62171

Contact: Dr. Claude Vézina, Acting Director

Staff: 2 researchers

Research interests: Microbiology:

- Development of microbiological procedures in the field of health and applied microbiology.
- Antigonococcic peptides produced by negative coagulase staphylococci have been purified and characterized. The peptides currently being studied are of considerable interest due to their cytotoxic properties which ally with the delta toxin of S. aureus (Infection and Immunity 46: 340-345) and because of their potential role as signal peptides in the synthesis of certain proteins.
- A human vaccine against Neisseria meningitidis has been developed. This vaccine is made up of proteic extracts and provides protection against serogroups A, B, C, and Y of N. meningitidis. The vaccine is currently in the clinical research stage.

Contract work performed/Grants: Our research is funded by federal and provincial government agencies (Conseil des recherches en pêche et agro-alimentaire du Québec, Medical Research Council of Canada).

VI RESEARCH CENTRES AFFILIATED WITH THE UNIVERSITÉ DU QUÉBEC

VI.2 INSTITUT ARMAND-FRAPPIER

VI.2.2 RESEARCH CENTRE FOR BIO-ORGANIC AND MEDICINAL CHEMISTRY

Address: Institut Armand-Frappier
531, boul. des Prairies
Laval (Québec)
Canada H7V 1B7

Phone/Telex: (514) 687-5010 / 055-62171

Contact: Dr. Bernard Belleau, Director

Staff: 3 postdoctoral fellows, 1 technician, 4 students

Research interests: Bio-organic and medicinal chemistry, natural products:

Principal mandates

- Isolation of natural products having biological or pharmaceutical importance, and characterization of their chemical structures.
- Action mechanisms of mycotoxins such as aflatoxins (causing liver cancer) or trichothecenes (vomitoxin causing vomitoxicosis in animals).
- Production of immobilized enzymes to isolate metabolites which are difficult to synthesize.
- Enzyme stereochemical mechanisms: substrates are synthesized with a stereospecific marker and enzyme action is tested.
- A new technique has been developed known as "Kinetic Pulse-Labelling," which allows trapping of biosynthetic intermediaries.

CHAPTER VII: NATIONAL RESEARCH COUNCIL OF CANADA, BIOTECHNOLOGY RESEARCH INSTITUTE

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.1 VIROLOGY RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Christopher Richardson, Ph.D. Biochemistry

Staff: 5 researchers (Ph.D.), 5 technical officers

Research interests:

Virology:

Most current vaccines are made of inactivated or attenuated viruses. Although very efficient, these vaccines are not free of interfering substances. Recombinant DNA techniques offer the potential to selectively manipulate gene expression systems. These techniques are being used to construct a variety of viral/mammalian cell and viral/insect cell expression systems for the high level production of foreign proteins, which are then applied to the development of new vaccines. The field of veterinary biologics has thus far been the primary benefactor of several recombinant DNA vaccines used to prevent disease in livestock.

Research projects

- Optmization of growth conditions for the high-density production of mammalian cells in culture.
- Production of bovine rotavirus and herpes virus proteins using viral expression vectors.
- Production of immortalized cell lines from transgenic mice.
- Testing of immunogenicity and immunoprotective capacity of proteins from important animal pathogens.
- Use of monoclonal antibodies to identify and characterize important epitopes on pathogens for the design of subunit vaccines.

Collaboration with other organizations: Biostar Inc., McGill University, University of Toronto, Veterinary Infectious Disease Organization (VIDO).

VII NATIONAL RESEARCH COUNCIL OF CANADA
BIOTECHNOLOGY RESEARCH INSTITUTE

VII.2 MAMMALIAN CELL GENETICS RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Shi-Hsiang Shen, Ph.D. Nucleic Acids

Staff: 6 researchers (Ph.D.), 8 technical officers

Research interests:

Mammalian Cell Genetics:

Certain products can only be obtained from the large-scale cultivation of mammalian cells. Many proteins of medical importance are subjected to processes uniquely performed by mammalian cells. The great demand for commercial supplies of monoclonal antibodies has stimulated considerable research on the development of improved gene expression systems and cell culture techniques. Progress in this field is rapid and will contribute to the development of genetic manipulation technologies to produce specialized products.

Research projects

- Study of eucaryote gene promoters and their interaction with regulatory proteins.
- Cloning and production of the maturation protease of peptidic precursors.
- Construction and expression of hybrid immunoglobulin genes.
- Characterization of the human and rat oncomodulin gene; expression in heterologous systems, and study of the structure-function relationship of the protein.
- Development of more efficient expression systems for different proteins.

Collaboration with other organizations: Division of Biological Sciences (NRCC), Bio-Research Laboratories Ltd., McGill University, Université de Montréal, Université de Lyon.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.3 GENE AND DNA SYNTHESIS RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Roland Brousseau, Ph.D. Chemistry

Staff: 5 researchers (Ph.D.), 4 technical officers

Research interests:

Gene and DNA Synthesis:

Chemical procedures for the solid state synthesis of oligonucleotides have advanced dramatically in the last few years and provide valuable tools to genetic engineering technology. These procedures can be used to synthesize a gene completely, produce restriction sites for cloning and hybridization probes, create gene alterations and construct families of genes which code for analogues of the parent proteins. Synthetic gene technology combined with advances in protein engineering is making possible the creation of novel molecules and new organisms.

Research projects

- Molecular genetics of the Bacillus thuringiensis bioinsecticide.
- Biotechnological applications of metallothioneins; natural heavy metal ligands for pharmaceutical, therapeutic, ore extraction and environmental applications.
- Highly sensitive, nonradioactive detection system using DNA probes.
- Photostable, bioinsecticide preparations from Bacillus thuringiensis for forest pest control.
- Gene and DNA synthesis service to support research projects.
- Germanium transport and recovery by bacteria.

Collaboration with other organizations: Allelix Inc., Division of Biological Sciences (NRCC), Clinical Research Institute of Montréal, Cancer Institute of Montréal, Plant Biotechnology Institute (NRCC), Queen's University, Biocide Network, Canadian Forestry Service (EC), University of Ottawa.

VII NATIONAL RESEARCH COUNCIL OF CANADA
BIOTECHNOLOGY RESEARCH INSTITUTE

VII.4 RECEPTORS RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Maureen O'Connor, Ph.D. Biochemistry

Staff: 3 researchers (Ph.D.), 3 technical officers

Research interests:

Receptors:

Plasma membrane receptors provide the initial point of interaction between the cell surface and many substances, including hormones, drugs, growth factors, neurotransmitters and toxins. Because of this unique position, receptors are able to regulate the responsiveness of cells to their environment. Knowledge of how receptors interact with their ligands and subsequently transmit their information to the inside of the cell is pivotal to the development of pharmacological agents to treat chronic inflammatory disease, neoplasia and atherogenesis, as well as to enhance wound repair and nerve cell function.

Research projects

- Studies on the control of action of the growth inhibitor, Transforming Growth Factor-beta.
- Characterization of the signalling mechanisms used by the Epidermal Growth Factor receptor.
- Structure-function relationships for the Human Muscarinic Acetylcholine receptor.
- Cloning and expression of mammalian receptors in yeast.

Collaboration with other organizations: Genentech Inc., National Institutes of Health, Université de Strasbourg.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.5 MACROMOLECULAR STRUCTURE RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Miroslaw Cygler, Ph.D. Crystallography

Staff: 2 researchers (Ph.D.), 3 technical officers

Research interests:

Macromolecular Structure:

Knowing the accurate crystal structures of specific proteins will make it possible to identify those areas where a predictable modification may be effectually made to improve the catalytic property of that protein. Several technologies, such as X-ray diffraction and parallel computing, will serve to advance modelling techniques to the stage where specific targeted properties could be improved, such as substrate and reaction specificity, cofactor requirements and optimum pH.

Research projects

- Establishment of a molecular modelling facility to support research projects.
- Crystallographic refinement of 3-D structures of some DNA binding immunoglobulin Fab fragments.
- Purification, crystallization and structure determination of Fab-antigen complexes and other proteins of interest.
- Development and implementation of software for X-ray crystallography and molecular modelling.
- Development of a versatile database of protein structures.

Collaboration with other organizations: Division of Biological Sciences (NRCC), Hypercube Inc., Kyowa Hakko Kogyo, University of Alberta, University of Saskatchewan.

VII NATIONAL RESEARCH COUNCIL OF CANADA
BIOTECHNOLOGY RESEARCH INSTITUTE

VII.6 ENZYMOLOGY RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Andrew Storer, Ph.D. Biochemistry

Staff: 4 researchers (Ph.D.), 4 technical officers

Research interests:

Enzymology:

Enzymes are the targets for many drugs, pesticides and herbicides. The application of enzymes in chemical technology is important for reasons of high reaction selectivity and stereospecificity, as well as the high catalytic rates possible under relatively mild reaction conditions. The study of specific enzyme structures and mechanisms will thus assist in the design of more effective agents for disease, pest and weed control.

Research projects

- Engineering of cysteine proteases to improve efficiency in both present and new commercial applications.
- Kinetics and mechanisms of enzymes to uncover new industrial applications and control mechanisms.
- Nuclear Magnetic Resonance studies of peptide and protein structures and characterization of enzyme-inhibitor interactions.

Collaboration with other organizations: Bio-Mega inc., Cornell University, Division of Biological Sciences (NRCC), Plant Biotechnology Institute (NRCC), Atlantic Research Laboratory (NRCC), Syntex Inc., Université de Montréal.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE (NRCC)

VII.7 PEPTIDE SYNTHESIS RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Jean Gagnon, Ph.D. Biochemistry

Staff: 4 researchers (Ph.D.), 2 technical officers

Research interests:

Peptide Synthesis:

Solid state peptide synthesis can be performed both manually and automatically with peptide synthesizers. In addition to yielding desirable end products, synthetic peptides can be used to raise antibodies which will cross-react with the complete protein should the latter be difficult to obtain in pure form. Great industrial interest in synthetic peptides also lies in their use as viral vaccines.

Research projects

- Synthesis of biologically active peptides and peptide derivatives for specific functional studies.
- Mass spectrometry technique to assess post-translational modification of proteins and authenticity of recombinant proteins, and to identify intermediate metabolites.

Collaboration with other organizations: Division of Biological Sciences (NRCC), Atlantic Research Laboratory (NRCC), McGill University.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.8 PROTEIN CHEMISTRY RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Jean Gagnon, Ph.D. Biochemistry

Staff: 4 researchers (Ph.D.), 2 technical officers

Research interests:

Protein Chemistry:

Protein engineering may involve either chemical modification of an existing protein or gene manipulation to create a variant of a natural molecule. In order to effectively design a particular protein molecule, it is necessary to first determine the protein's primary structure, which is largely responsible for specific desirable properties. Advances in protein sequencing, synthesis and purification techniques offer the exciting prospect of engineering novel proteins not found in nature.

Research projects

- Identification of the primary structure of the mature yeast killer toxin and study of the specificity of the KEX1 gene product.
- Determination of protein and peptide amino acid sequences.
- Purification of microbial and plant lipases; structural, enzymatic activity and stability studies.
- Bioconversion of leukotrienes.
- Serine-protease 1 studies.

Collaboration with other organizations: Bio-Mega inc., Cangene Corp., Division of Biological Sciences (NRCC), Clinical Research Institute of Montréal, Plant Biotechnology Institute (NRCC), John Labatt Inc., McGill University, Université de Montréal.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.9 MOLECULAR IMMUNOLOGY RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. Marc Lalande, Ph.D. Medical Biophysics

Staff: 4 researchers (Ph.D.), 4 technical officers

Research interests:

Molecular Immunology:

Before the development of hybridoma technology, the supply of suitable antibodies was limited by the unpredictability of the immune response, chiefly because of the mixture of antibodies which is produced against a given antigen. Hybridoma technology enables the production of an almost unlimited quantity of homogeneous antibodies with widespread applications in the medical field as structural probes, detection devices, assay and purification tools and therapeutic agents. Advances in characterization, separation and sorting techniques will lead to the development of effective gene mapping and transfer technologies to identify and subsequently treat a host of medical disorders.

Research projects

- Flow cytometry techniques to characterize monoclonal antibodies, separate populations of lymphocytes, sort chromosomes and monitor parameters in bioreactors.
- Techniques for the characterization, manipulation, identification and transfer of large DNA molecules.
- Molecular and cellular studies of T lymphocyte activation.
- Production of monoclonal antibodies against the human thymocyte differentiation antigens CD1.
- Use of in vitro thymus culture to study T-cell differentiation.
- Pulsed DNA gel electrophoresis technique to separate large mammalian DNA molecules.

Collaboration with other organizations: Xerox Research Centre.

VII NATIONAL RESEARCH COUNCIL OF CANADA BIOTECHNOLOGY RESEARCH INSTITUTE

VII.10 SEPARATION TECHNOLOGY RESEARCH GROUP

Address: Biotechnology Research Institute (NRCC)
6100, avenue Royalmount
Montréal (Québec)
Canada H4P 2R2

Phone/Telex: (514) 496-6105

Contact: Dr. André Marsan, Eng., Ph.D., Director of External Programs
Dr. P. Mourot, Eng., Ph.D. Biochemistry Engineering

Staff: 1 researcher (Ph.D.), 1 technical officer

Research interests:

Separation Technology:

Recent developments in biotechnology, particularly in the production of therapeutic substances by recombinant DNA technology, have emphasized the need for simple, industrial-scale separation processes for the recovery of desired molecules. Highly selective techniques will play a pivotal role in the effective purification of bio-products from fermentation broths, since these substances are usually produced as minor species in a complex medium.

Research projects

- Aseptic concentration and purification of bioactive cells using membrane technology.
- Integration of membrane processes into the industrial production process for synthetic peptides.
- Application of membrane technology in the isolation and production of high value-added products from industrial effluents.

Collaboration with other organizations: Bio-Mega inc., St-Hyacinthe Food Research Centre, Institut Rosell Inc., Lallemand Inc., Laboratoires Rhizotec Inc., Sonitec Inc., Université Laval.

CHAPTER VIII: BIO-RESEARCH LABORATORIES LTD.

VIII BIO-RESEARCH LABORATORIES LTD.

VIII.1 BIOANALYTICAL RESEARCH AND DEVELOPMENT AND RADIOLABELLED STUDIES DEPARTMENT

Address: Bio-Research Laboratories Ltd.
87, chemin Senneville
Senneville (Québec)
Canada H9X 3R3

Phone/Telex (514) 457-2280 / 05-821582

Contact: Dr. Howard M. Hill, Director

Staff: 22 researchers

Research interests: Method development of assays for drugs in biofluids metabolism and pharmacokinetic studies in animals and man:

Principal mandates

- To develop highly sensitive analytical techniques for the assay of drugs and metabolites in biological fluids; pharmacokinetics of proteins/peptides using I-125 radiolabelling.

Developed over 130 sensitive drug assays in the last 3 years. Fully automated sample processor system for assaying drugs in biological fluids that eliminates extraction.

Equipment: GC/MS, FAST system comprising auto injector, AASP, gradient pump, diode array detector.

VIII BIO-RESEARCH LABORATORIES LTD.

VIII.2 DIVISION OF CLINICAL RESEARCH

Address:	Bio-Research Laboratories Ltd. 87, chemin Senneville Senneville (Québec) Canada H9X 3R3
Phone/Telex	(514) 457-2280 / 05-821582
Contact:	June A. Anslow, Director
Staff:	23 researchers
Research interests:	The mandate of the Division of Clinical Research is to provide high quality clinical data for use by pharmaceutical companies in their registration or promotional activities. Major services include bioavailability/bioequivalence, pharmacokinetic, ascending dose tolerance and specialized gastrointestinal evaluations (fecal blood loss, endoscopy, gastric acid titration, gastric pH monitoring). The studies are conducted primarily in healthy volunteers (male or female).
Equipment:	8 centrifuges, 3 EKG's, 6 syringe pumps, 1 defibrillator, 1 endoscope, 8 suction pumps, 1 audio cabinet for hearing testing, 2 crash carts plus emergency equipment, 14 phlebotomy chairs. Studies are conducted in 3 specialized clinical units with a total capacity of 140 beds.

VIII BIO-RESEARCH LABORATORIES LTD.

VIII.3 DIVISION OF ANALYTICAL SERVICES

Address: Bio-Research Laboratories Ltd.
87, chemin Senneville
Senneville (Québec)
Canada H9X 3R3

Phone/Telex: (514) 457-2280 / 05-821582

Contact: Dr. R.K. Pike, Director

Staff: 55 researchers

Research interests: Analysis of biologically active organics (drugs, pesticides, etc.) in biological matrices:

Principal mandates

- To provide concentrations of trace/organic compounds in biological matrices by developing validated reproducible analytical methodology in the fields of gas and high pressure liquid chromatography and microbiology.

Equipment: 5 000 square feet of laboratory space equipped with 11 gas chromatographs and 15 high pressure liquid chromatographs equipped with ultraviolet (11), fluorescence (9) and electrochemical (3) detectors; 2 laboratory automation systems, fully computerized operation.

VIII BIO-RESEARCH LABORATORIES LTD.

VIII.4 DIVISION OF TOXICOLOGY

Address:

Bio-Research Laboratories Ltd.
87, chemin Senneville
Senneville (Québec)
Canada H9X 3R3

Phone/Telex:

(514) 457-2280 / 05-821582

Contact:

Toxicology: Dr. Leif Modeweg-Hansen
Special toxicology services: Mr. George Lulham
Experimental toxicology: Dr. Colin Bier

Staff:

89 researchers

Research interests:

To evaluate, using GLP (Good Laboratory Practice), the safety of new drugs, pesticides, chemicals and food additives performed in rodent and nonrodent species. Also the division of special toxicology services specializes in performing a full range of inhalation toxicity testing as well as reproduction/fertility/teratology and neurobehavioural studies. The division of experimental toxicology places particular emphasis on continuous intravenous infusion and cardiovascular pharmacology and toxicology.

To develop protocols, conduct the research, and deliver scientific reports of high quality accepted by the client as well as by government bodies such as the FDA and EPA in the United States, the CSM in the United Kingdom, the BCA in West Germany (as well as corresponding institutions in other European countries including Sweden, France and Italy), the MHW and MAFF in Japan and the HPB in Canada.

Equipment:

The division has two ultramodern surgeries and a physiological monitoring laboratory. In addition, a 60 000-sq.-ft. animal facility with 56 custom-designed, environmentally controlled animal rooms (an additional 32-animal-room facility is scheduled to open in 1989), with in-house support groups to provide all necessary ancillary services in clinical biochemistry, hematology, analytical chemistry, pharmacokinetics, radioactive assays, pathology and electron microscopy.

VIII BIO-RESEARCH LABORATORIES LTD.

VIII.5 DIVISION OF PATHOLOGY

Address: Bio-Research Laboratories Ltd.
87, chemin Senneville
Senneville (Québec)
Canada H9X 3R3

Phone/Telex: (514) 457-2280 / 05-821582

Contact: Dr. George Losos, Director

Staff: 48 researchers

Research interests: To conduct standardized methodologies rigorously designed to comply with international regulatory standards. This division also conducts specialized approaches (using histochemical, immunohistochemical, enzyme and radiolabelled methods) to areas where routine techniques are inadequate. Validated protocols in this area include in vivo liver carcinogenesis assay systems (e.g. Solt-Farber model) as well as expertise in neurotoxicity evaluation (behavioural, neurochemistry and neuropathology). Electron microscopy and a computerized image analysis system can be used for qualitative and quantitative evaluations of the structural and biochemical composition of tissues and organs. Active research programs include development of quantitative methods to determine the efficacy of anti-inflammatory and gastrointestinal agents, and immunomodulators.

Equipment: 5 500 sq. ft. with the capability of IBAS image analysis, electron microscope processing, ultramicrotomes, as well as dark room facilities and equipment for whole-body perfusion.

INDEX OF RESEARCH FIELDS

INDEX OF RESEARCH FIELDS

Bacterial Biotechnology — Page

- Infectious diseases and the use of antibiotics in swine..... 45

Basic and Clinical Research

- Basic and clinical research related to aging, metabolism, oncology, infectious diseases, genetics and certain psychosocial aspects of disease treatment..... 82
- Basic and clinical studies in cardiology, endocrinology, gastroenterology, immunology, pneumology, nephrology and rheumatology..... 37
- Basic, clinical, epidemiological and pharmacological research related to immunology (AIDS), oncology, cardiology and hematology..... 84
- Study of nerve regeneration..... 84

Biochemistry

- Biochemistry of steroid hormones..... 34
- Bioconversion of leukotrienes..... 106
- Corticosteroid biosynthesis..... 34
- Identification of the yeast killer toxin..... 106
- Study and characterization of natural products; action mechanisms of mycotoxins; enzyme stereochemical mechanisms..... 95
- Study of cellular aging mechanisms..... 35
- Synthesis of natural products (ryanodol and antibiotic erythromycin A)..... 39
- Synthesis of peptides and peptide derivatives; mass spectrometry..... 105

Bioethics

- Transdisciplinary studies in medicine, ethics and law..... 77

Biomaterials - Endocrinology of Reproduction

- Endocrine effects of synthetic steroids (acne and hirsutism)..... 15
- Study of biomaterials, biological cardiac valves..... 15

Biomedical Engineering

- Application of engineering methods and computer technology in medicine..... 68
- Neuromuscular control; muscle mechanics; signal analysis; database systems.... 68

Biophysics

- Nuclear medicine applied to diagnostics and treatment of diseases; modern techniques in medical imaging..... 75

Page

Biotechnology

- Applied biotechnology in articifial cells, microorganisms, blood substitutes, artificial kidneys, etc..... 67
- Genetics and molecular biology; cloning applications for monoclonal antibodies and specialized products..... 100
- Microenvironments in and around mammal embryos..... 43
- Molecular biology and receptors..... 102
- Molecular biology; biochemistry..... 103
- Molecular genetics of bioinsecticides and biotechnological applications of metallothioneins..... 101

Biotechnology - Microbiology

- Monoclonal antibodies and recombinant vaccines for certain respiratory and digestive tract viruses in the bovine species..... 46

Biotechnology - Molecular Biology

- Integration of membrane processes into the industrial production process for synthetic peptides..... 108
- Monoclonal antibodies against subcellular components..... 19

Cardiology

- Applications of biomedical engineering to cardiology..... 55
- Basic, clinical and pharmacological research on cardiovascular diseases..... 56
- Pharmacological study of antiarrhythmics; hypertension and cardiac insufficiency..... 24
- Respiratory diseases: occupational pulmonary diseases and mechanics of respiratory diseases..... 55
- Sleep disorders: insomnia, biorhythms and work schedules..... 55
- Study of arrhythmias and hypertension; pharmacokinetics of cardiovascular drugs..... 55

Cardiovascular

- Electrophysiological study of cardiovascular phenomena..... 36

Cardiovascular Pharmacology

- Stress and utero-ovarian circulation..... 44

Chemistry

- Organic synthesis; computer techniques..... 63

Page

Endocrinology

- Clinical research..... 19
- Fertility control: sperm maturation, in vitro fertilization..... 19
- Genetic, immunological, virological and oncological studies: AIDS and viral diseases; pharmacological aspects of chemotherapy..... 54
- Molecular biology; cloning..... 52
- Multidisciplinary studies in reproduction..... 72
- Oncology and cancer of the prostate..... 58
- Renal physiology..... 58
- Reproduction mechanisms..... 58

Endocrinology, Molecular Biology

- Mechanisms controlling the formation and degradation of hormones in cancer tissue..... 19
- Mechanisms of secretion of exocrine glands; growth of digestive tract organs..... 38

Enzymology

- Engineering of cysteine proteases..... 104
- Genetics and enzyme mechanisms..... 104

Epidemiological and Evaluative Research

- Basic, clinical, epidemiological and evaluative research on health care..... 70

Gastroenterology

- Basic, clinical and pharmacological research on the digestive tract and liver..... 60
- Clinical oncology..... 60
- Endocrinology; calcium and phosphorus metabolism; diabetes..... 60
- Microbiology: resistance and sensitivity of bacteria to antibiotics..... 60
- Physiopathology of diseases of the digestive tract..... 60

Genetic Engineering

- Cloning; studies on the structure and function of early genes of DNA tumour viruses..... 32
- Studies on the molecular basis of kappa chain polymorphism in inbred mice..... 32

Genetic Medicine

- Study of problems related to human genetics; cell and gene structure..... 71

Page

Geriatrics

- Basic, clinical, social and multidisciplinary research on the aging process.... 85

Hypercholesterolemia

- Pharmacodynamics of hypolipidemic drugs; epidemiological studies related to coronary heart disease..... 16

Immunohistochemistry, Histochemistry, Radiolabelling

- Studies on liver carcinogenesis; efficacy of anti-inflammatory and gastrointestinal agents and immunomodulators..... 115

Immunology

- Immunopharmacological studies of inflammatory mediators..... 29
- Studies of monoclonal antibodies..... 29

Immunology, Rheumatology, Inflammation

- Study of the mechanisms of allergic and inflammatory diseases..... 17

Infectious Diseases

- Epidemiology and study of toxicity..... 18
- Pharmacokinetics and pharmacodynamics of antibiotics..... 18

Medical Training

- Research on the application of cognitive science techniques in medical training..... 79

Mental Health

- Basic, clinical, epidemiological, evaluative, pharmacological, psychological and social research on mental illness, such as depression, Alzheimer's Disease, etc..... 81
- Basic, clinical, pharmacological, psychological and social research related to mental illness; studies on alcohol and drug use..... 59

Microbiology

- Development of a vaccine against Neisseria meningitidis..... 94
- Microbiological research on antigonococcic peptides..... 94
- Study of biologically active substances in biological matrices..... 113

Page

Microcalorimetry in Bioprocesses

- Anaeorobic waste water treatment; inhibition phenomena commonly encountered in alcoholic fermentation..... 40

Molecular Biology

- Basic, clinical and pharmacological research on hypertension; lipoproteins; hormonal peptides..... 52
- Mechanisms of control of gene expression..... 19
- Neuropeptides and biotechnology..... 62
- Oncogenes; viral neoplasia, clinical oncology and epidemiology of solid tumours..... 53
- Peptidergic systems..... 62

Molecular Immunology

- Molecular and cellular studies of T lymphocyte activation..... 107

Neurobiological Behaviour

- Basic and pharmacological research applied to behavioural studies..... 89

Neuroendocrinology

- Basic, clinical and pharmacological research on growth hormones, lipid metabolism, steroids, kidney metabolism and osteoarthritic diseases..... 57

Neurology

- Basic and clinical research in neurochemistry, neuroanatomy and neuropsychology..... 86

Neurophysiology

- Neuropharmacology of the central nervous system..... 61
- Study of motor functions; cardiovascular regulating mechanisms..... 61

Nuclear Medicine

- Radiopharmaceutical studies in nuclear medicine; radiolabelling; photodynamic therapy..... 31

Page

Occupational Health

- Effect of exposure to workplace contaminants..... 78
- Epidemiological study of occupational health and safety..... 78
- Relationship between disease and environment..... 78

Oncology

- Basic, clinical, epidemiological and immunological research on cancer and cancer treatment..... 69
- Chemotherapy of sarcoma, colon cancer and ovarian cancer..... 26
- Immunology of human bladder cancer; monoclonal antibodies..... 21
- Monoclonal antibodies..... 26

Oncology: Molecular and Cellular Biology

- Biotechnology of antitumour drugs..... 20

Parasitology

- Diagnostics based on parasite antigens..... 80
- Study of receptors using monoclonal antibodies..... 80

Pediatrics

- Basic, clinical, epidemiological and pharmacological research related to several disorders affecting children: diabetes, cystic fibrosis, abnormal growth, learning disabilities, etc..... 83

Pharmaceutics and Health Services

- Market studies related to pharmaceutical health care management..... 90
- Public policies..... 90

Pharmacoepidemiology

- Monitoring of benefits and risks of prescription and nonprescription drugs and biologicals in a population..... 73

Pharmacokinetics of Vasoactive Drugs

- Cardiovascular diseases..... 22

Page

Pharmacology

- Assay of drugs..... 111
- Bioanalytical research..... 111
- Biotechnology..... 74
- Immunological approaches to neuropharmacology..... 74
- Pharmacokinetics; toxicity and bioavailability..... 112
- Pharmacology of asthma drugs..... 30
- Radiolabelling studies..... 111
- Study of the effects of drugs on the brain; mechanism of action of illicit drugs..... 74
- Study of the nerve growth factor (NGF)..... 74

Pharmacology and Pharmaceutics

- Clinical study of medications..... 48
- Exploration of inflammatory reactions..... 50
- Studies on increasing specificity of action of drugs..... 47
- Studies on metabolism and social pharmacy..... 25
- Studies on metabolism and toxicity of drugs..... 51
- Study of the pharmacokinetic and biopharmaceutical profile of narcotic analgesics and anticancer drugs..... 49

Pneumology

- Lung cancer; allergies; study of antiasthmatic medication..... 23
- Toxicity of inhaled mineralogical matter..... 33

Toxicology

- Immunotoxicology of environmental or industrial xenobiotics..... 93
- Reactions in rodents and nonrodents to food additives, drugs, pesticides, etc..... 114

Tropical Medicine

- Clinical parasitology and tropical medicine..... 76

Virology

- Biotechnology related to the production of vaccines..... 99